# STIC Search Report
## EIC 1700

STIC Database Tracking Number: 190403

| | |
|---|---|
| **TO: Greg Delcotto**<br>**Location: REM 9A39**<br>**Art Unit : 1751**<br>**May 24, 2006**<br><br>**Case Serial Number: 10/531906** | **From: Usha Shrestha**<br>**Location: EIC 1700**<br>**REMSEN 4B28**<br>**Phone: 571/272-3519**<br>**usha.shrestha@uspto.gov** |

## Search Notes

# STIC Search Results Feedback Form

USPTO

## EIC17000

Questions about the scope or the results of the search? Contact *the EIC searcher or contact:*

Kathleen Fuller, EIC 1700 Team Leader
571/272-2505 REMSEN 4B28

## Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* [ ] *Example: 1713*
- *Relevant prior art* ***found****, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

*Types of relevant prior art found:*

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

- *Relevant prior art* ***not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability)
  - ☐ Results were not useful in determining patentability or understanding the invention

Comments:

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**CONFIRMATION NO. 3917**

Bib Data Sheet

| SERIAL NUMBER | FILING OR 371(c) DATE | CLASS | GROUP ART UNIT | ATTORNEY DOCKET NO. |
|---|---|---|---|---|
| 10/531,906 | 04/18/2005<br>RULE | 502 | 1754 | HS/15-22771/A/PCT |

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** CONTINUING DATA ********** AD

This application is a 371 of PCT/EP03/11636 10/21/2003

** FOREIGN APPLICATIONS ********** AD

EUROPEAN PATENT OFFICE (EPO) 02405929.7 10/30/2002

| | | | | | |
|---|---|---|---|---|---|
| Foreign Priority claimed ☑ yes ☐ no<br>35 USC 119 (a-d) conditions ☑ yes ☐ no ☐ Met after Allowance<br>met<br>Verified and Acknowledged Examiner's Signature Initials | STATE OR COUNTRY<br>SWITZERLAND | SHEETS DRAWING | TOTAL CLAIMS<br>34 | INDEPENDENT CLAIMS<br>1 |

**ADDRESS**

324

**TITLE**

Use of metal complex compounds as oxidation catalysts

| FILING FEE RECEIVED | FEES: Authority has been given in Paper |
|---|---|
| 3010 | No. _____ to charge/credit DEPOSIT ACCOUNT<br>No. _____ for following: |

- ☐ All Fees
- ☐ 1.16 Fees ( Filing )
- ☐ 1.17 Fees ( Processing Ext. of time )
- ☐ 1.18 Fees ( Issue )
- ☐ Other _____
- ☐ Credit

Access DB# 190403

# SEARCH REQUEST FORM

**Scientific and Technical Information Center**

Requester's Full Name: GREG DELCOTTO Examiner #: 72268 Date: 5/16/06

Art Unit: 1751 Phone Number 305 71-272-1312 Serial Number: 10/531906

Mail Box and Bldg/Room Location: 9A39 RR MSRN Results Format Preferred (circle): PAPER DISK E-MAIL

**If more than one search is submitted, please prioritize searches in order of need.**

**********

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: USE OF METAL COMPLEX COMPOUNDS AS OXIDATION CATALYSTS

Inventors (please provide full names): SEE ATTACHED BIB SHEETS

Earliest Priority Filing Date: 10/30/02

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

* SEE ATTACHED CLAIMS

SCIENTIFIC REFERENCE BR
Sci & Tech Inf. Ctr.
MAY 18 REC'D
Pat. & T.M. Office

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| STAFF USE ONLY | Type of Search | | Vendors and cost where applicable | |
|---|---|---|---|---|
| Searcher: Lisa | NA Sequence (#) | | STN | $ 431.93 |
| Searcher Phone #: | AA Sequence (#) | | Dialog | |
| Searcher Location: | Structure (#) | 1 | Questel/Orbit | |
| Date Searcher Picked Up: 5/24/06 | Bibliographic | | Dr.Link | |
| Date Completed: 5/24/06 | Litigation | | Lexis/Nexis | |
| Searcher Prep & Review Time: 40 | Fulltext | | Sequence Systems | |
| Clerical Prep Time: 30 | Patent Family | | WWW/Internet | |
| Online Time: 60 | Other | | Other (specify) | |

PTO-1590 (8-01)

GROUP I, 1-24
W/TRAVERSE

1. (currently amended): ~~Use, as a catalyst for~~ A method of catalyzing an oxidation ~~reactions~~ reaction, which comprises contacting an oxidizable substrate with an oxidizing agent in the presence of a catalytically effective amount of at least one metal complex compound of formula (1)

$$[L_nMe_mX_p]^zY_q \qquad (1),$$

914 785-7127/PCT

wherein

Me is manganese, titanium, iron, cobalt, nickel or copper,

X is a coordinating or bridging radical,

n and m are each independently of the other an integer having a value of from 1 to 8,

p is an integer having a value of from 0 to 32,

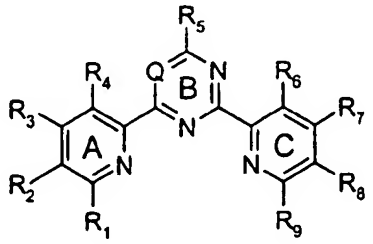
z is the charge of the metal complex,

4 GROUPS

Y is a counter-ion,

q = z/(charge of Y), and

L is a ligand of formula (2)



(2),

wherein

Q is N or $CR_{10}$,

$R_1$, $R_2$, $R_3$, $R_4$, $R_5$, $R_6$, $R_7$, $R_8$, $R_9$ and $R_{10}$ are each independently of the others hydrogen; unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; cyano; halogen; nitro; $-COOR_{11}$ or $-SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; $-SR_{12}$, $-SO_2R_{12}$ or $-OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; $-NR_{13}R_{14}$; $-(C_1$-$C_6$alkylene$)$-$NR_{13}R_{14}$; $-N^{\oplus}R_{13}R_{14}R_{15}$; $-(C_1$-$C_6$alkylene$)$-$N^{\oplus}R_{13}R_{14}R_{15}$; $-N(R_{12})$-$(C_1$-$C_6$alkylene$)$-$NR_{13}R_{14}$; $-N[(C_1$-$C_6$alkylene$)$-$NR_{13}R_{14}]_2$; $-N(R_{12})$-$(C_1$-$C_6$alkylene$)$-$N^{\oplus}R_{13}R_{14}R_{15}$; $-N[(C_1$-$C_6$alkylene$)$-$N^{\oplus}R_{13}R_{14}R_{15}]_2$; $-N(R_{12})$-$N$-$R_{13}R_{14}$ or $-N(R_{12})$-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl, or
$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms.

2. (currently amended): ~~Use~~ A method according to claim 1, wherein Me is manganese in the oxidation state II, III, IV or V.

3. (cancelled).

4. (currently amended): ~~Use~~ A method according to ~~any one of claims~~ claim 1, ~~2 and 3,~~ wherein X is $CH_3CN$, $H_2O$, $F^-$, $Cl^-$, $Br^-$, $HOO^-$, $O_2^{2-}$, $O^{2-}$, $R_{16}COO^-$, $R_{16}O^-$, $LMeO^-$ or $LMeOO^-$, wherein $R_{16}$ is hydrogen, $-SO_3C_1$-$C_4$alkyl or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl, and L and Me are as defined in claim 1.

5. (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 4~~ claim 1, wherein Y is $R_{17}COO^-$, $ClO_4^-$, $BF_4^-$, $PF_6^-$, $R_{17}SO_3^-$, $R_{17}SO_4^-$, $SO_4^{2-}$, $NO_3^-$, $F^-$, $Cl^-$, $Br^-$, $I^-$, citrate, tartrate or oxalate, wherein
$R_{17}$ is hydrogen or unsubstituted or ~~subsituted~~ substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl.

6. (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 5~~ claim 1, wherein n is an integer having a value of from 1 to 4~~, especially 1 or 2~~.

7. (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 6~~ claim 1, wherein m is an integer having a value of 1 or 2~~, especially 1~~.

8. (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 7~~ claim 1, wherein p is an integer having a value of from 0 to 4~~, especially 2~~.

9. (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 8~~ claim 1, wherein z is an integer having a value of from 8- to 8+.

**10.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 9~~ claim 1, wherein aryl is phenyl or naphthyl each unsubstituted or substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, halogen, cyano, nitro, carboxy, sulfo, hydroxy, amino, N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or by naphthyloxy.

**11.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 10~~ claim 1, wherein the 5-, 6- or 7-membered ring formed by $R_{13}$ and $R_{14}$ together with the nitrogen atom linking them is an unsubstituted or $C_1$-$C_4$alkyl-substituted pyrrolidine, piperidine, piperazine, morpholine or azepane ring wherein the nitrogen atoms may be quaternised.

**12.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 11~~ claim 1, wherein
$R_5$ is $C_1$-$C_{12}$alkyl; phenyl unsubstituted or substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, halogen, cyano, nitro, carboxy, sulfo, hydroxy, amino, N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or by naphthyloxy; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein
$R_{11}$ is in each case hydrogen, a cation, $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein
$R_{12}$ is in each case hydrogen, $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; -$N(R_{12})$-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; –$N(R_{12})$-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; -$N(R_{12})$-N-$R_{13}R_{14}$ or -$N(R_{12})$-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein
$R_{12}$ may have one of the above meanings and
$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen, unsubstituted or hydroxy-substituted $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above, or
$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form a pyrrolidine, piperidine, piperazine, morpholine or azepane ring unsubstituted or substituted by at least one unsubstituted $C_1$-$C_4$alkyl and/or substituted $C_1$-$C_4$alkyl, wherein the nitrogen atom may be quaternised, and $R_1$, $R_2$, $R_3$, $R_4$, $R_6$, $R_7$, $R_8$, $R_9$ and $R_{10}$ may be as defined in claim 1 or are hydrogen.

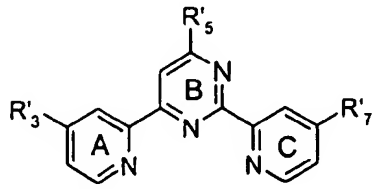
**13.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 12~~ claim 1, wherein
$R_5$ is phenyl unsubstituted or substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, halogen, phenyl or by hydroxy; cyano; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein
$R_{11}$ is in each case hydrogen, a cation, $C_1$-$C_4$alkyl or phenyl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein $R_{12}$ is in each case hydrogen, $C_1$-$C_4$alkyl or phenyl; -$N(CH_3)$-$NH_2$ or -NH-$NH_2$; amino; N-mono- or

N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety; or an unsubstituted or $C_1$-$C_4$alkyl-substituted pyrrolidine, piperidine, piperazine, morpholine or azepane ring.

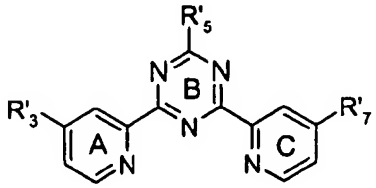
**14.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 13~~ claim 1, wherein $R_5$ in L is $C_1$-$C_4$alkoxy; hydroxy; hydrazine; amino; N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety; or an unsubstituted or $C_1$-$C_4$alkyl-substituted pyrrolidine, piperidine, piperazine, morpholine or azepane ring.

**15.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 14~~ claim 12, wherein $R_1$, $R_2$, $R_3$, $R_4$, $R_6$, $R_7$, $R_8$, $R_9$ and $R_{10}$ in L have the definitions given for $R_5$ in ~~any one of claims 12 to 14~~ claim 12, but those radicals may additionally be hydrogen.

**16.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 15~~ claim 1, wherein L is a compound of formula (3a) and/or (3b)




(3a)




(3b)

wherein $R'_3$, $R'_5$ and $R'_7$ have the definitions given in ~~claims 1 to 15~~ claim 1 for $R_3$, $R_5$ and $R_7$.

**17.** (currently amended): ~~Use~~ A method according to ~~any one of claims 1 to 11~~ claim 1, which comprises the use, as a catalyst for oxidation reactions, of at least one metal complex compound of formula (1')

$$[L'_nMe_mX_p]^zY_q \qquad (1'),$$

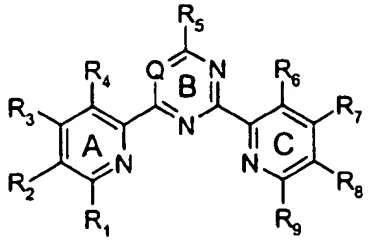
wherein
Me is manganese, titanium, iron, cobalt, nickel or copper,
X is a coordinating or bridging radical,
n and m are each independently of the other an integer having a value of from 1 to 8,
p is an integer having a value of from 0 to 32,

z is the charge of the metal complex,

Y is a counter-ion,

q = z/(charge of Y), and

L' is a ligand of formula (2')



(2')

wherein

Q is N or $CR_{10}$,

$R_1$, $R_2$, $R_3$, $R_4$, $R_5$, $R_6$, $R_7$, $R_8$, $R_9$ and $R_{10}$ are each independently of the others hydrogen; unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$;–$N(R_{12})$-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$;–$N[(C_1$-$C_6$alkylene)-$NR_{13}R_{14}]_2$; –$N(R_{12})$-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$;–$N[(C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}]_2$; -$N(R_{12})$-N-$R_{13}R_{14}$ or -$N(R_{12})$-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms,

with the proviso that

at least one of the substituents $R_1$ to $R_{10}$ contains a quaternised nitrogen atom that is not bonded directly to one of the three rings A, B and/or C.

**18.** (currently amended): ~~Use~~ A method according to claim 17, wherein $R_5$ is not hydrogen.

**19.** (currently amended): ~~Use~~ A method according to ~~either~~ claim 17 ~~or claim 18~~, wherein

$R_5$ in L' is phenyl unsubstituted or substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, halogen, phenyl or by hydroxy; cyano; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

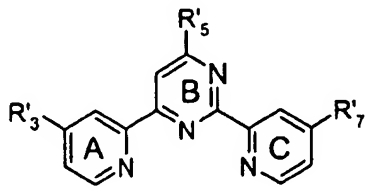
$R_{11}$ is in each case hydrogen, a cation, $C_1$-$C_4$alkyl or phenyl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein $R_{12}$ is in each case hydrogen, $C_1$-$C_{14}$alkyl or phenyl; -$N(CH_3)$-$NH_2$ or -NH-$NH_2$; amino; N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, wherein the nitrogen atoms~~, especially the nitrogen atoms not bonded to one of the three rings A, B or C,~~ may be quaternised; N-mono- or N,N-di-$C_1$-$C_4$alkyl-$N^{\oplus}R_{13}R_{14}R_{15}$ unsubstituted or substituted by hydroxy in the alkyl moiety, wherein

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the others hydrogen or unsubstituted or hydroxy-substituted $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above, or

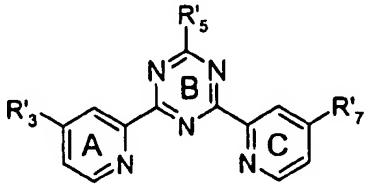
$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form a pyrrolidine, piperidine, piperazine, morpholine or azepane ring unsubstituted or substituted by at least one~~ $C_1$-$C_4$alkyl or by at least one~~ unsubstituted $C_1$-$C_4$alkyl and/or substituted $C_1$-$C_4$alkyl, wherein the nitrogen atom may be quaternised; N-mono- or N,N-di-$C_1$-$C_4$alkyl-$NR_{13}R_{14}$ unsubstituted or substituted by hydroxy in the alkyl moiety, wherein

$R_{13}$ and $R_{14}$ may be as defined above.

**20.** (currently amended): ~~Use~~ A method according to~~ any one of claims 17 to 19~~ claim 17, wherein L' is a compound of formula (3'a) and/or (3'b)




(3'a)

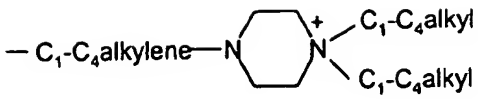


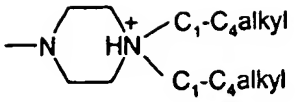

(3'b)

wherein R'$_3$, R'$_5$ and R'$_7$ have the definitions ~~and preferred meanings~~ indicated ~~above~~ in claim 17 for $R_5$, but R'$_3$ and R'$_7$ may additionally be hydrogen.

**21.** (currently amended): ~~Use~~ A method according to~~ any one of claims 17 to 20~~ claim 17, wherein

(i) at least one of the substituents R'$_3$, R'$_5$ and R'$_7$ is one of the radicals



or



wherein the unbranched or branched alkylene group may be unsubstituted or substituted, and wherein the alkyl groups, which are unbranched or branched independently of one another, may be unsubstituted or substituted and wherein the piperazine ring may be unsubstituted or substituted.

**22.** (cancelled).

**23.** (currently amended): ~~Use~~ A method according to ~~any one of claims 17 to 22~~ claim 17, wherein L' contains precisely 1, 2 or ~~precisely~~ 3 quaternised nitrogen atoms.

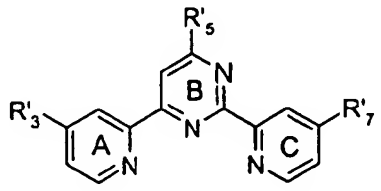
**24.** (currently amended): ~~Use~~ A method according to any one of claims 1 to 23, wherein the oxidation is carried out using molecular oxygen and/or air.

**25.** (currently amended): A metal complex compound of formula (1a)

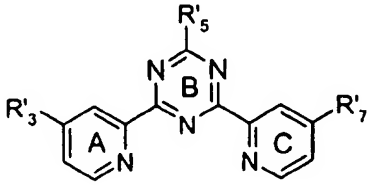
$$[L_nMe_mX_p]^zY_q \qquad (1a),$$

wherein all substituents are as defined in ~~any one of claims 1 to 16~~ claim 1.

**26.** (currently amended): A metal complex compound of formula (1a) according to claim 25, wherein L is a compound of formula (3a) and/or (3b)




(3a)




(3b)

wherein

$R'_5$ is $C_1$-$C_4$alkoxy; hydroxy; N-mono- or N,N-di-$C_1$-$C_4$alkylamino substituted by hydroxy in the alkyl moiety; or $-NR_{13}R_{14}$; $-(C_1$-$C_6$alkylene$)-NR_{13}R_{14}$; $-N(R_{12})-(C_1$-$C_6$alkylene$)-NR_{13}R_{14}$; $-N[(C_1$-$C_6$alkylene$)-NR_{13}R_{14}]_2$; or $-N(R_{12})$-N-$R_{13}R_{14}$, wherein

$R_{12}$ is hydrogen; $C_1$-$C_{12}$alkyl or unsubstituted phenyl or phenyl substituted by (substituted in the alkyl moiety by hydroxy) N-mono- or N,N-di-$C_1$-$C_4$alkylamino-, N-phenylamino-, N-naphthylamino-, phenyl-, phenoxy- or naphthyloxy, and

$R_{13}$ and $R_{14}$ are each independently of the other hydrogen, unsubstituted or hydroxy-substituted $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form a pyrrolidine, piperidine, piperazine, morpholine or azepane ring that is unsubstituted or substituted by at least one unsubstituted $C_1$-$C_4$alkyl and/or substituted $C_1$-$C_4$alkyl~~, especially a pyrrolidine, piperidine, piperazine, morpholine or azepane ring,~~ and

$R'_3$ and $R'_7$ are each independently of the other hydrogen; $C_1$-$C_4$alkoxy; hydroxy; N-mono- or N,N-di-$C_1$-$C_4$alkylamino substituted by hydroxy in the alkyl moiety; or $-NR_{13}R_{14}$; $-(C_1$-$C_6$alkylene$)-NR_{13}R_{14}$; $-N(R_{12})-(C_1$-$C_6$alkylene$)-NR_{13}R_{14}$; $-N[(C_1$-$C_6$alkylene$)-NR_{13}R_{14}]_2$; or $-N(R_{12})$-N-$R_{13}R_{14}$, wherein

$R_{12}$ is hydrogen; $C_1$-$C_{12}$alkyl or unsubstituted or (substituted in the alkyl moiety by hydroxy) N-mono- or N,N-di-$C_1$-$C_4$alkylamino-, N-phenylamino-, N-naphthylamino-, phenyl-, phenoxy- or naphthyloxy-substituted phenyl, and

$R_{13}$ and $R_{14}$ are each independently of the other hydrogen; unsubstituted or hydroxy-substituted $C_1$-$C_{12}$alkyl, unsubstituted phenyl or phenyl substituted as indicated above, or

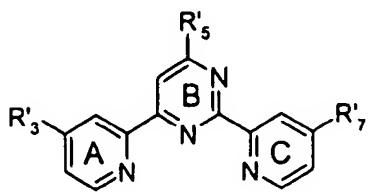
$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form a pyrrolidine, piperidine, piperazine, morpholine or azepane ring that is unsubstituted or substituted by at least one unsubstituted $C_1$-$C_4$alkyl and/or substituted $C_1$-$C_4$alkyl~~, especially a pyrrolidine, piperidine, piperazine, morpholine or azepane ring~~.

**27.** (currently amended): A metal complex compound of formula (1'a)

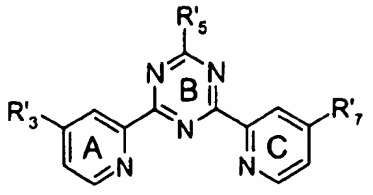
$$[L'_nMe_mX_p]^zY_q \qquad (1'a),$$

wherein all substituents are as defined in ~~claims~~ claim 17 ~~to 23~~.

**28.** (currently amended): A metal complex compound of formula (1'a) according to claim 27, wherein L' is a compound of formula (3'a) and/or (3'b)



(3'a)



(3'b)

wherein $R'_3$, $R'_5$ and $R'_7$ have the definitions ~~and preferred meanings~~ given ~~above~~ for $R_5$ ~~in claims 17 to 23~~, but $R'_3$ and $R'_7$ may additionally be hydrogen, with the proviso that

(i) at least one of the substituents $R'_3$, $R'_5$ and $R'_7$ is a radical $-(C_1\text{-}C_6\text{alkylene})\text{-}N^{\oplus}R_{13}R_{14}R_{15}$; $-N(R_{12})\text{-}(C_1\text{-}C_6\text{alkylene})\text{-}N^{\oplus}R_{13}R_{14}R_{15}$; $-N[(C_1\text{-}C_6\text{alkylene})\text{-}N^{\oplus}R_{13}R_{14}R_{15}]_2$; or $-N(R_{12})\text{-}N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

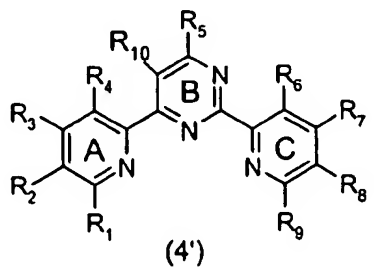
$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the others hydrogen or unsubstituted or substituted $C_1\text{-}C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms; or

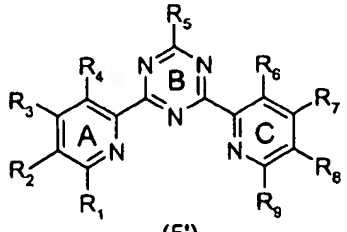
$-NR_{13}R_{14}$; $-(C_1\text{-}C_6\text{alkylene})\text{-}NR_{13}R_{14}$; $-N(R_{12})\text{-}(C_1\text{-}C_8\text{alkylene})\text{-}NR_{13}R_{14}$; $-N[(C_1\text{-}C_6\text{alkylene})\text{-}NR_{13}R_{14}]_2$; or $-N(R_{12})\text{-}N\text{-}R_{13}R_{14}$, wherein

$R_{12}$ and $R_{15}$ are as defined above and $R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form a 5-, 6- or 7-membered ring which may be unsubstituted or substituted by at least one unsubstituted $C_1\text{-}C_4$alkyl and/or substituted $C_1\text{-}C_4$alkyl and may contain further hetero atoms, wherein at least one nitrogen atom not bonded to one of the rings A, B and/or C is quaternised.

**29.** (currently amended): A ligand L' according to ~~any one of claims 17 to 23, claim~~ 27 ~~and 28~~ of formula (4') or (5')



(4')



(5')

wherein

$R_1$, $R_2$, $R_3$, $R_4$, $R_5$, $R_6$, $R_7$, $R_8$, $R_9$ and $R_{10}$ are each independently of the others hydrogen; unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; –N[($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$]$_2$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –N[($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$]$_2$; -N($R_{12}$)-N-$R_{13}R_{14}$ or –N($R_{12}$)-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

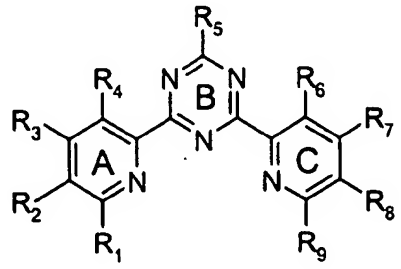
$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms,

with the proviso that

at least one of the substituents $R_1$ to $R_{10}$ contains a quaternised nitrogen atom that is not bonded directly to one of the three rings A, B and/or C.

**30.** (currently amended): A ligand L according to ~~any one of claims 1 to 16, 25 and 26~~ claim 1 of formula (6)




(6)

wherein

$R_1$, $R_2$, $R_4$, $R_5$, $R_6$, $R_7$, $R_8$ and $R_9$ are each independently of the others hydrogen; unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; -$N(R_{12})$-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; –$N[(C_1$-$C_6$alkylene)-$NR_{13}R_{14}]_2$; –$N(R_{12})$-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –$N[(C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}]_2$; -$N(R_{12})$-N-$R_{13}R_{14}$; or –$N(R_{12})$-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms,

and

$R_3$ is phenyl substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, hydroxy, sulfo, sulfato, halogen, cyano, nitro, carboxy, amino, N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or by naphthyloxy, substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$CH_3$; $C_3$-$C_{18}$alkyl; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

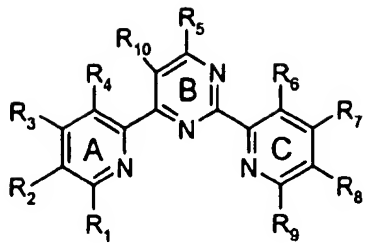
$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; -$N(R_{12})$-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N[(C_1$-$C_6$alkylene)-$NR_{13}R_{14}]_2$; –$N(R_{12})$-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; -$N[(C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}]_2$; -$N(R_{12})$-N-$R_{13}R_{14}$; or –$N(R_{12})$-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms.

**31.** (currently amended): A ligand L according to ~~any one of claims 1 to 16, 25 and 26~~ claim 1 of formula (7)



(7)

wherein

$R_1$, $R_2$, $R_3$, $R_4$, $R_5$, $R_6$, $R_8$, $R_9$ and $R_{10}$ are each independently of the others hydrogen; unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; cyano; halogen; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted ~~substituted or unsubstituted~~ aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; –N[($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$]$_2$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –N[($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$]$_2$; -N($R_{12}$)-N-$R_{13}R_{14}$ or –N($R_{12}$)-$N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms,

and

$R_7$ is phenyl substituted by $C_1$-$C_4$alkyl, $C_1$-$C_4$alkoxy, hydroxy, sulfo, sulfato, halogen, cyano, nitro, carboxy, amino, N-mono- or N,N-di-$C_1$-$C_4$alkylamino unsubstituted or substituted by hydroxy in the alkyl moiety, N-phenylamino, N-naphthylamino, phenyl, phenoxy or by naphthyloxy, substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$CH_3$; $C_3$-$C_{18}$alkyl; cyano; F; Br; I; nitro; -$COOR_{11}$ or -$SO_3R_{11}$ wherein

$R_{11}$ is in each case hydrogen, a cation or unsubstituted or substituted $C_1$-$C_{18}$alkyl or substituted or unsubstituted aryl; -$SR_{12}$, -$SO_2R_{12}$ or -$OR_{12}$ wherein

$R_{12}$ is in each case hydrogen or unsubstituted or substituted $C_1$-$C_{18}$alkyl or unsubstituted or substituted aryl; -$NR_{13}R_{14}$; -($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -$N^{\oplus}R_{13}R_{14}R_{15}$; -($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$; -N[($C_1$-$C_6$alkylene)-$NR_{13}R_{14}$]$_2$; –N($R_{12}$)-($C_1$-$C_6$alkylene)-$N^{\oplus}R_{13}R_{14}R_{15}$;

$-N[(C_1-C_6alkylene)-N^{\oplus}R_{13}R_{14}R_{15}]_2$; $-N(R_{12})-N-R_{13}R_{14}$; or $-N(R_{12})-N^{\oplus}R_{13}R_{14}R_{15}$, wherein

$R_{12}$ is as defined above and

$R_{13}$, $R_{14}$ and $R_{15}$ are each independently of the other(s) hydrogen or unsubstituted or substituted $C_1-C_{18}$alkyl or substituted or unsubstituted aryl, or

$R_{13}$ and $R_{14}$, together with the nitrogen atom linking them, form an unsubstituted or substituted 5-, 6- or 7-membered ring which may contain further hetero atoms.

**32.** (currently amended): A detergent, cleaning, disinfecting or bleaching composition containing

I) from 0 to 50% A) of an anionic surfactant and/or B) of a non-ionic surfactant,

II) from 0 to 70% C) of a builder substance,

III) from 1 to 99% D) of a peroxide,

IV) E) at least one metal complex compound of formula (1) ~~and/or (1') of any one of claims~~ of claim 25 ~~to 28~~ in an amount that, in the liquor, gives a concentration of from 0.5 to 50 mg/litre of liquor~~, preferably from 1 to 30 mg/litre of liquor,~~ when from 0.5 to 20 g/litre of the detergent, cleaning, disinfecting or bleaching agent are added to the liquor, the percentages in each case being percentages by weight, based on the total weight of the composition, and

V) water ad 100%.

**33.** (currently amended): A solid formulation containing

a) from 1 to 99% by weight of a metal complex compound of formula (1) ~~and/or (1') of any one of claims~~ of claim 25 ~~to 28~~,

b) from 1 to 99% by weight of a binder,

c) from 0 to 20% by weight of an encapsulating material,

d) from 0 to 20% by weight of a further additive and

e) from 0 to 20% by weight of water.

**34.** (original): A solid formulation according to claim 33, which is in the form of tablets or granules.

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=> d his

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               SEL RN

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L4             6 S L3
L5               SCR 1991 OR 1966 OR 1965 OR 1920
L6            17 S L3 AND L5
L7           466 S L3 AND L5 FUL
L8             2 S L7 AND L2
               SAV L7 DEL906/A

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L11            4 S L9 AND DETERG?/SC,SX
L12           25 S L9 AND OXIDAT?
L13           34 S L10-L12
L14            1 S L13 AND L1
L15            9 S L9 AND CAT/RL
L16           35 S L13 OR L15


=> d que l16
L3               STR
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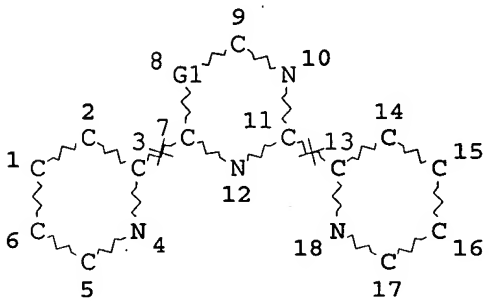


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DEFAULT ECLEVEL IS LIMITED

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NUMBER OF NODES IS 19

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L10           12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND CATALY?
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L12           25 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L9 AND OXIDAT?
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=> fil hcap
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=> d l16 1-35 ibib abs hitstr hitind

L16  ANSWER 1 OF 35  HCAPLUS  COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER:         2005:1317796  HCAPLUS
DOCUMENT NUMBER:          144:224855
TITLE:                    Synthesis, characterization and biological
                          activity of ternary copper(II) complexes
                          containing polypyridyl ligands
AUTHOR(S):                Patel, R. N.; Singh, Nripendra; Shukla, K. K.;
                          Gundla, V. L. N.; Chauhan, U. K.
CORPORATE SOURCE:         Department of Chemistry, School of Environment
                          Biology, A.P.S. University, Rewa, MP, 486003,
                          India
SOURCE:                   Spectrochimica Acta, Part A: Molecular and
                          Biomolecular Spectroscopy (2006), 63A(1),
                          21-26
                          CODEN: SAMCAS; ISSN: 1386-1425
PUBLISHER:                Elsevier B.V.
DOCUMENT TYPE:            Journal
LANGUAGE:                 English
AB   Ternary Cu(II) complexes involving polypyridyl ligands in the
     coordination sphere [Cu(tpy)(phen)](ClO4)2 (1),
     [Cu(tpy)(bipy)](ClO4)2 (2), [Cu(tptz)(phen)](ClO4)2 (3) and
     [Cu(tptz)(bipy)](BF4)2 (4) where tpy = 2,2':6',2''-terpyridine,
     tptz = 2,4,6-tri(2-pyridyl)-1,3,5-triazine, phen =
     1,10-phenanthroline and bipy = 2,2'-bipyridine were synthesized
     and characterized by elemental anal., magnetic susceptibility,
     X-band EPR spectroscopy and electronic spectroscopy.  Single
     crystal x-ray of (1) revealed a distorted square pyramidal
     geometry in the complex.  Magnetic susceptibility measurements at
     room temperature were at 1.77-1.81 μB.  SOD and antimicrobial
     activities of these complexes were also measured.  Crystal data of
     1: P.hivin.1, a 9.3010(7), b 9.7900(6), c 16.4620(6) Å, Vc =
     1342.73(14) Å3, Z = 4.  The bond distance of Cu-N in square
     base is 2 ± 0.04 Å.
IT   875557-32-7P 875557-34-9P
        (preparation, SOD activity and antifungal and antibacterial
        activities of)
RN   875557-32-7  HCAPLUS
CN   INDEX NAME NOT YET ASSIGNED

     CM   1

     CRN  875557-31-6
     CMF  C25 H17 Cu N7
     CCI  CCS
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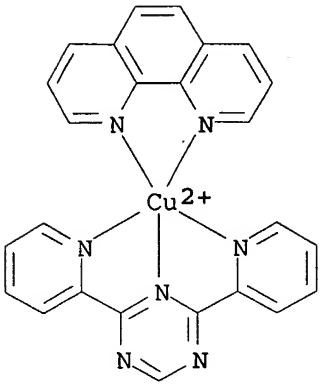

CM 2

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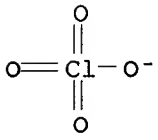
CMF Cl O4



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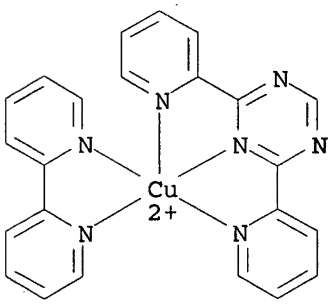

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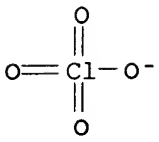


CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 7, 10, 75
IT 9054-89-1, Superoxide dismutase
(copper polypyridyl ternary complexes as mimic for **catalysis** of dismutation of superoxide)
IT 25970-70-1P **875557-32-7P 875557-34-9P**
(preparation, SOD activity and antifungal and antibacterial activities of)
REFERENCE COUNT: 31 THERE ARE 31 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 2 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:1200315 HCAPLUS
DOCUMENT NUMBER: 143:462161
TITLE: Use of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for reactions with peroxy compounds for bleaching colored stains on hard surfaces
INVENTOR(S): Wieprecht, Torsten; Dubs, Marie-Josee; Schlingloff, Gunther
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 95 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005105303 | A1 | 20051110 | WO 2005-EP51732 | 20050420 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY; KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

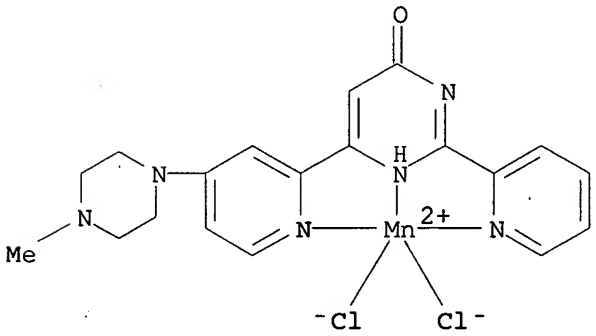
PRIORITY APPLN. INFO.: EP 2004-101821 A 20040429

AB The present invention relates to the use of certain manganese complexes having bispyridylpyrimidine or bispyridyltriazine ligands or mixts. of such ligands as **catalysts** for reactions with peroxy compds. for bleaching colored stains on hard surfaces, especially dishes in automatic dishwashers. The invention relates also to cleaning formulations for hard surfaces comprising such **catalysts**. Thus, 0.130 mol DMF and 4.06 mol thionyl chloride were stirred, 0.812 mol picolinic acid was added therein and heated at 70° for 24 h, 114 mol of the resulting 4-chloropyridine-2-carboxylic acid Et ester was reacted with 100 mmol sodium hydride and 114 mmol Et acetate, stirred for 12 h at room temperature to give 14.5 g 3-(4-chloropyrid-2-yl)-3-oxopropionic acid Et ester, 12.3 mol of which was reacted with 303 mmol 1-methylpiperazine, refluxed for 22 h to give 6-[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol, 2.5 mmol of which was reacted with 2.5 mmol manganese chloride tetrahydrate to give a metal complex, showing good bleaching effect on tea-stained cup when formulated (20 μM) with 44 mM hydrogen peroxide.

IT **860469-44-9P**, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol manganese dichloride complex **860469-45-0P**, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol methyl iodide manganese dichloride complex **869111-82-0P**, 2,6-Di(2-pyridyl)-4-pyridiminol manganese dichloride complex **869111-83-1P**, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol manganese dichloride complex **869111-84-2P**, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol di(methyl iodide) manganese dichloride complex
(**catalyst**; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

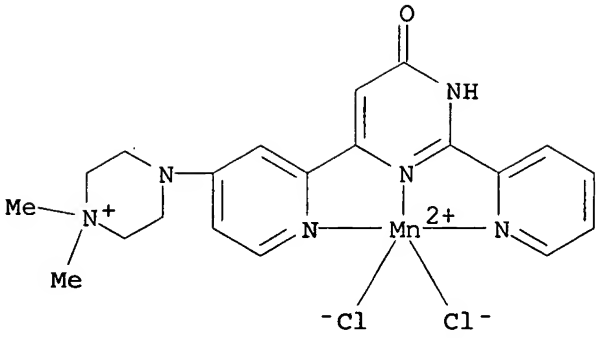
RN 860469-44-9 HCAPLUS

CN Manganese, dichloro[6-[4-(4-methyl-1-piperazinyl)-2-pyridinyl-κN]-2-(2-pyridinyl-κN)-4(1H)-pyrimidinone-κN1]-(9CI) (CA INDEX NAME)



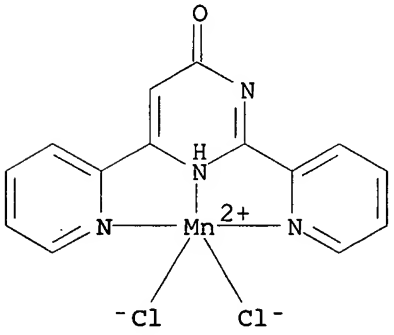

RN 860469-45-0 HCAPLUS

CN Manganese(1+), dichloro[4-[2-[1,6-dihydro-6-oxo-2-(2-pyridinyl-κN)-4-pyrimidinyl-κN3]-4-pyridinyl-κN]-1,1-dimethylpiperazinium]-, iodide (9CI) (CA INDEX NAME)

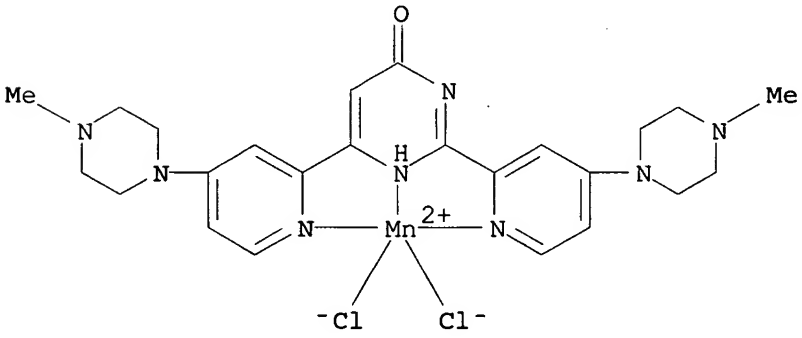


● $I^-$

RN 869111-82-0 HCAPLUS
CN Manganese, dichloro[2,6-di(2-pyridinyl-κN)-4(1H)-pyrimidinone-κN1]- (9CI) (CA INDEX NAME)

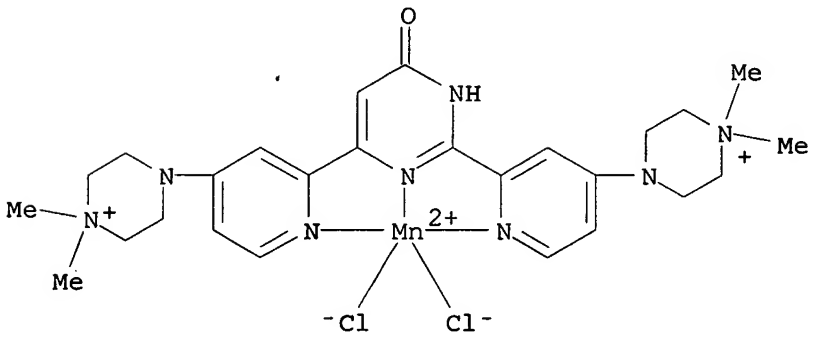


RN 869111-83-1 HCAPLUS
CN Manganese, [2,6-bis[4-(4-methyl-1-piperazinyl)-2-pyridinyl-κN]-4(1H)-pyrimidinone-κN1]dichloro- (9CI) (CA INDEX NAME)



RN 869111-84-2 HCAPLUS
CN Manganese(2+), dichloro[4,4'-[(1,6-dihydro-6-oxo-2,4-

pyrimidinediyl-κN3)di(2,4-pyridinediyl-κN)]bis[1,1-dimethylpiperazinium]]-, diiodide (9CI) (CA INDEX NAME)




●2 I-

IC ICM B01J031-18
ICS C07F013-00; C07D401-14; C11D003-395; C11D003-39; C11D011-00; C11D011-02; C11D017-00; C11D017-06; C07D239-00; C07D213-00

CC 46-6 (Surface Active Agents and **Detergents**)
Section cross-reference(s): 27, 67

ST metal complex bispyridylpyrimidine bispyridyltriazine ligand; **catalyst** reaction peroxy compd bleaching colored stain hard surface; DMF picolinic acid ethyl acetate methylpiperazine reactant ligand; manganese methylpiperazinylpyridylpyridylpyrimidinol complex **catalyst** prepn

IT Detergents
(bleaching; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT Coordination compounds
(**catalyst**; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT Detergents
(dishwashing; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT Detergents
(production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT Ligands
(production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT **860469-44-9P**, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol manganese dichloride complex **860469-45-0P**, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol methyl iodide manganese dichloride complex **869111-82-0P**, 2,6-Di(2-pyridyl)-4-pyridiminol

manganese dichloride complex **869111-83-1P**, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol manganese dichloride complex **869111-84-2P**, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol di(methyl iodide) manganese dichloride complex
(**catalyst**; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT 19235-89-3P, 4-Chloro-2-cyanopyridine 64064-56-8P, 4-Chloropyridine-2-carboxylic acid ethyl ester 99586-65-9P, 4-Chloropicolinamide 688753-54-0P, 3-(4-Chloropyrid-2-yl)-3-oxopropionic acid ethyl ester 688753-55-1P, 6-(4-Chloropyrid-2-yl)-2-pyrid-2-yl-pyrimidin-4-ol 688753-58-4P
(intermediate in ligand preparation; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT 75239-97-3P, 4,6-Dipyrid-2-yl-[1,3,5]triazin-2-ylamine 688753-56-2P, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol 688753-57-3P, 6-[4-(4-Methyl-piperazin-1-yl)-pyrid-2-yl]-2-pyrid-2-yl-pyrimidin-4-ol methyl iodide 688753-59-5P, 2,6-Bis(4-chloropyrid-2-yl)-pyrimidin-4-ol 688753-60-8P, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol 688753-61-9P, 2,6-Bis[4-(4-methyl-piperazin-1-yl)-pyrid-2-yl]-pyrimidin-4-ol di(methyl iodide) 688753-62-0P, 4,6-Dipyrid-2-yl-[1,3,5]triazin-2-ol
(ligand; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT 10239-68-6, 2,6-Di(2-pyridyl)-4-pyridiminol
(ligand; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT 13446-34-9, Manganese chloride tetrahydrate
(reactant in **catalyst** preparation; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

IT 50-01-1, Guanidine hydrochloride 57-13-6, Urea, reactions 64-17-5, Ethanol, reactions 68-12-2, DMF, reactions 74-88-4, Methyl iodide, reactions 98-98-6, Picolinic acid 100-70-9, 2-Cyanopyridine 109-01-3, 1-Methyl-piperazine 141-78-6, Ethyl acetate, reactions 7719-09-7, Thionyl chloride 51285-26-8, 2-Amidinopyridine hydrochloride
(reactant in ligand preparation; production of metal complexes having bispyridylpyrimidine or bispyridyltriazine ligands as **catalysts** for bleaching colored stains on hard surfaces)

REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 3 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:673179 HCAPLUS
DOCUMENT NUMBER: 143:175164
TITLE: Metal complex compounds and their use as **catalysts** for **oxidations** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide

INVENTOR(S): Wieprecht, Torsten; Heinz, Uwe; Xia, Juntao; Schlingloff, Gunther; Dubs, Marie-Josee
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.
SOURCE: PCT Int. Appl., 88 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2005068074 | A2 | 20050728 | WO 2005-EP50000 | 2005 0103 |

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

PRIORITY APPLN. INFO.: EP 2004-100078 A 2004 0112

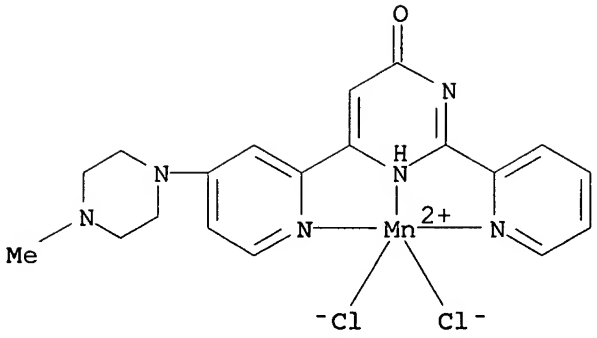
OTHER SOURCE(S): MARPAT 143:175164

AB The invention accordingly relates to the use as **catalysts** of at least one metal complex [LnMemXp]zYq (I), wherein all substituents have the meanings as defined in the claims for **oxidation** reactions with organic peroxy acids and/or precursors of organic peroxy acid and H2O2, as well as to detergent compns. In I, Me is manganese; titanium; iron; cobalt; nickel or copper, X is a coordinating or bridging radical, n and m are 1 to 8, p is 0 to 32, z is the charge of the metal complex, Y is a counter-ion, q = z/(charge of Y), and 15 L is a tricyclic compound ligand. A manganese(II) complex with 1,1-dimethyl-4-(4'-oxo-1',4'-dihydro-[2,2';6',2"]terpyrid-4-yl)-piperazin-1-ium methosulfate was prepared and used as a **catalyst** for stain-removing bleaching with peracetic acid.

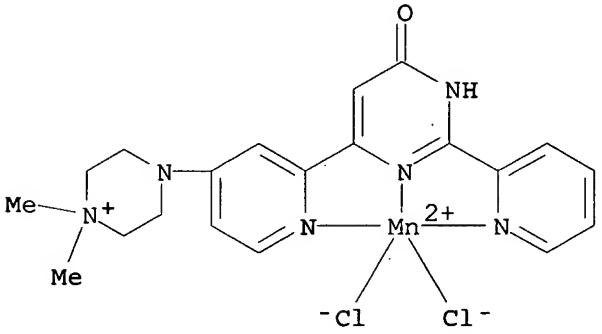
IT **860469-44-9P 860469-45-0P**
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)

RN 860469-44-9 HCAPLUS

CN Manganese, dichloro[6-[4-(4-methyl-1-piperazinyl)-2-pyridinyl-κN]-2-(2-pyridinyl-κN)-4(1H)-pyrimidinone-κN1]-(9CI) (CA INDEX NAME)



RN 860469-45-0 HCAPLUS
CN Manganese(1+), dichloro[4-[2-[1,6-dihydro-6-oxo-2-(2-pyridinyl-κN)-4-pyrimidinyl-κN3]-4-pyridinyl-κN]-1,1-dimethylpiperazinium]-, iodide (9CI) (CA INDEX NAME)



● $I^-$

IC ICM B01J031-18
ICS B01J031-04; C07F013-00; C07D213-22; C07D401-14; C11D003-395; D06L003-02; D06M011-50; D21C009-10; A61L002-18; A61L012-12; C07B033-00; C07D301-14
CC 46-4 (Surface Active Agents and **Detergents**)
Section cross-reference(s): 78
ST metal complex **catalyst oxidn** peroxy acid hydrogen peroxide
IT Bleaching
Cleaning
Detergents
Disinfectants
**Oxidation catalysts**
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)
IT Coordination compounds
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)
IT 474491-21-9P 688741-04-0P 688741-05-1P 688741-07-3P

860469-42-7P 860469-43-8P **860469-44-9P**
**860469-45-0P**
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)

IT 109-01-3P, 1-Methyl-piperazine 19235-89-3P, 4-Chloro-2-cyanopyridine 40614-52-6P, 1-Pyrid-2-yl-butane-1,3-dione 64064-56-8P, 4-Chloro-pyridine-2-carboxylic acid ethyl ester 75239-97-3P 648431-07-6P 648431-08-7P 648431-09-8P 648431-11-2P 648431-12-3P 648431-17-8P 648431-18-9P 648431-19-0P 648431-20-3P 648431-21-4P 648431-23-6P 688753-55-1P 688753-56-2P 688753-57-3P 688753-58-4P 688753-59-5P 688753-60-8P 688753-61-9P 688753-62-0P
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)

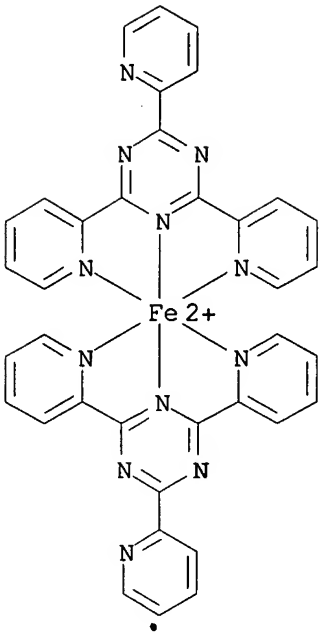
IT 50-01-1, Guanidine hydrochloride 57-13-6, Urea, reactions 98-98-6, Picolinic acid 100-70-9, 2-Cyanopyridine 142-25-6, N,N,N'-Trimethyl-ethane-1,2-diamine 2524-52-9 13446-34-9, Manganese(II) chloride tetrahydrate 51285-26-8, 2-Amidinopyridine hydrochloride
(metal complex compds. and their use as **catalysts** for **oxidns.** with peroxy acids and/or precursors of organic peroxy acid and hydrogen peroxide)

L16 ANSWER 4 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:439786 HCAPLUS
DOCUMENT NUMBER: 143:305849
TITLE: Reactions of 2,4,6-tripyridyl-1,3,5-s-triazine and its Fe(II) complex with OH• and eaq-
AUTHOR(S): Hela, Pamidipati Gayatri; Reddy, Ramireddy Nageswara; Anipindi, Nageswara Rao; Priyadarsini, K. Indira; Mukherji, Tulsi
CORPORATE SOURCE: Department of Chemistry, National Tsing Hua University, Hsinchu, Taiwan
SOURCE: Reaction Kinetics and Catalysis Letters (2005), 85(1), 79-87
CODEN: RKCLAU; ISSN: 0133-1736
PUBLISHER: Akademiai Kiado
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Pulse radiolysis studies indicated that OH· and eaq- formed adducts with 2,4,6-tripyridyl-1,3,5-s-triazine (tptz). The OH-adduct showed an absorption maximum at 290 nm, while the adduct formed from the attack of eaq- and subsequent protonation of the anion, has an absorption maximum at 300 nm. In case of the complex, Fe(tptz)22+, both OH· and eaq- gave ligand centered adducts. All the adducts decayed by second order dimerization or disproportionation, a disproportionation reaction in case of the complex.

IT **22452-38-6**
(absorption spectroscopy on reactions of 2,4,6-tripyridyl-1,3,5-s-triazine and Fe(II) complex with oh• and eaq-)

RN 22452-38-6 HCAPLUS
CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



CC 22-9 (Physical Organic Chemistry)
Section cross-reference(s): 73, 74
IT **Oxidation**
Reduction
UV and visible spectra
(absorption spectroscopy on reactions of 2,4,6-tripyridyl-1,3,5-s-triazine and Fe(II) complex with oh• and eaq-)
IT 3352-57-6, Hydroxy, reactions 3682-35-7 **22452-38-6**
(absorption spectroscopy on reactions of 2,4,6-tripyridyl-1,3,5-s-triazine and Fe(II) complex with oh• and eaq-)
REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 5 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:364179 HCAPLUS
DOCUMENT NUMBER: 143:317716
TITLE: CoII complexes of triazine-based tridentate ligands with positive and attractive CoII/III redox couples
AUTHOR(S): Medlycott, Elaine A.; Theobald, Isabelle; Hanan, Garry S.
CORPORATE SOURCE: Departement de Chimie, Universite de Montreal, Montreal, QC, H3T 1J4, Can.
SOURCE: European Journal of Inorganic Chemistry (2005), (7), 1223-1226
CODEN: EJICFO; ISSN: 1434-1948
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
AB CoII complexes based on the triazine ligand 2,4-di(2'-pyridyl)-6-(p-R-C6H4)-1,3,5-triazine were synthesized and characterized. Cyclic voltammetry shows that the CoII/III redox couple is more pos. than previously described Co complexes of tridentate ligands. The CoII/III redox couple may be varied depending on the nature of

the substituent on the Ph ring of the triazine ligand.

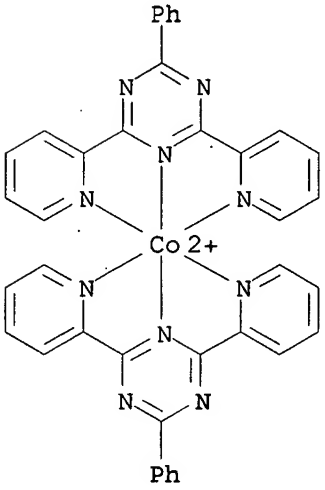
IT **864653-14-5P 864653-16-7P**
(preparation and electrochem. redox and conversion to cobalt chloro triazine derivative complex)

RN 864653-14-5 HCAPLUS

CN Cobalt(2+), bis[2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

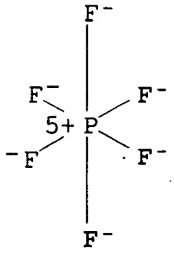
CM 1

CRN 864653-13-4
CMF C38 H26 Co N10
CCI CCS




CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



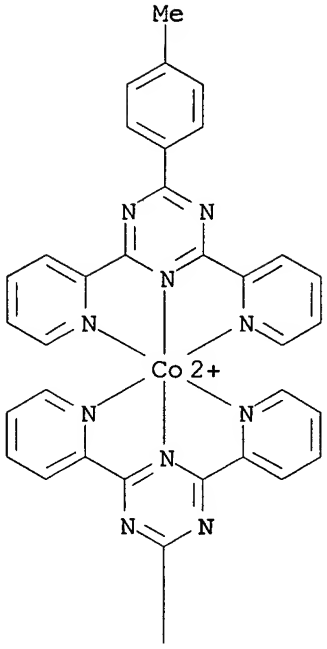

RN 864653-16-7 HCAPLUS

CN Cobalt(1+), bis[2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

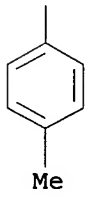
CM 1

CRN 864653-15-6
CMF C40 H30 Co N10
CCI CCS

PAGE 1-A

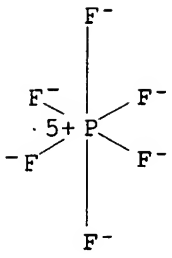



PAGE 2-A




CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



IT **864653-18-9P**
(preparation and electrochem. redox and crystal structure and conversion to cobalt chloro triazine derivative complex)

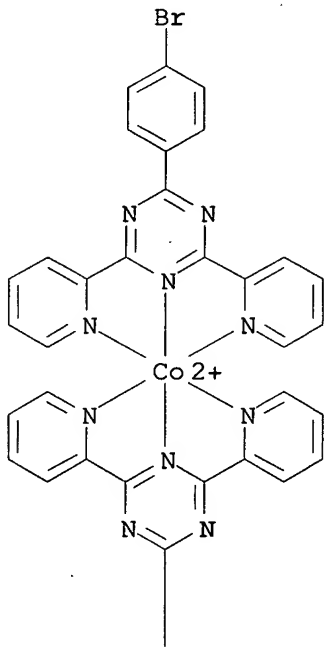
RN 864653-18-9 HCAPLUS

CN Cobalt(1+), bis[2-(4-bromophenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

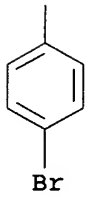
CM 1

CRN 864653-17-8
CMF C38 H24 Br2 Co N10
CCI CCS

PAGE 1-A



PAGE 2-A




CM 2

CRN 16919-18-9
CMF F6 P
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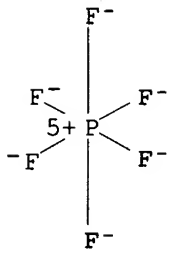
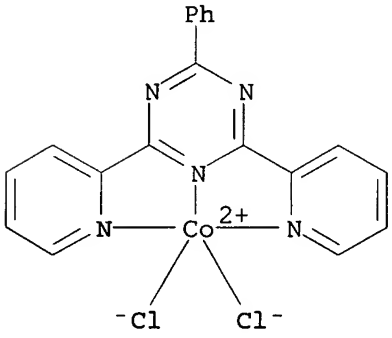
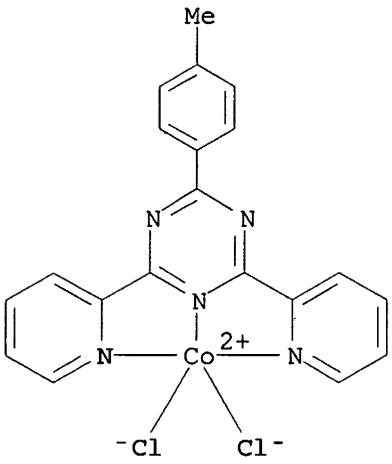


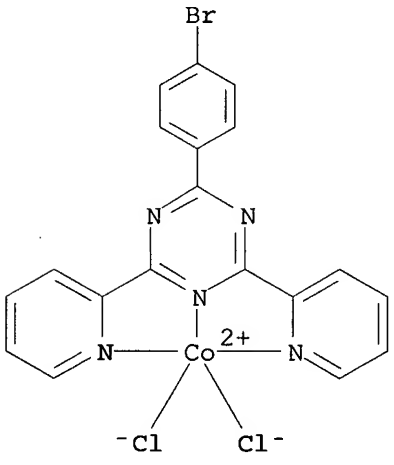

IT **864653-19-0P 864653-20-3P 864653-21-4P**
(preparation of)
RN 864653-19-0 HCAPLUS
CN Cobalt, dichloro[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]- (9CI) (CA INDEX NAME)




RN 864653-20-3 HCAPLUS
CN Cobalt, dichloro[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]- (9CI) (CA INDEX NAME)




RN 864653-21-4 HCAPLUS
CN Cobalt, [4-(4-bromophenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]dichloro- (9CI) (CA INDEX NAME)



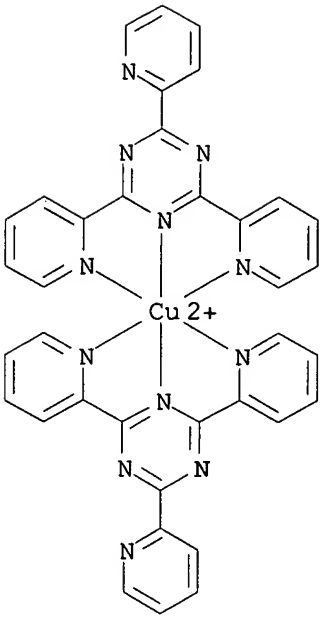

CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 75
IT Crystal structure
Molecular structure
**Oxidation**, electrochemical
**Oxidation** potential
Reduction, electrochemical
Reduction potential
(of cobalt triazine derivative complexes)
IT **864653-14-5P 864653-16-7P**
(preparation and electrochem. redox and conversion to cobalt chloro triazine derivative complex)
IT **864653-18-9P**
(preparation and electrochem. redox and crystal structure and conversion to cobalt chloro triazine derivative complex)
IT **864653-19-0P 864653-20-3P 864653-21-4P**
(preparation of)
REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE

FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 6 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2005:264251 HCAPLUS
DOCUMENT NUMBER: 144:54244
TITLE: Electrochemical reduction of oxygen and hydrogen peroxide **catalyzed** by a surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on a graphite electrode
AUTHOR(S): Dias, Vera L. N.; Fernandes, Elizabeth N.; da Silva, Leila M. S.; Marques, Edmar P.; Zhang, Jiujun; Marques, Aldalea L. Brandes
CORPORATE SOURCE: Department of Technology Chemistry, Campus do Bacanga, Federal University of Maranhao, Sao Luis, MA, 65080-040, Brazil
SOURCE: Journal of Power Sources (2005), 142(1-2), 10-17
CODEN: JPSODZ; ISSN: 0378-7753
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A graphite electrode irreversibly adsorbed by 2,4,6-tris(2-pyridyl)-1,3,5-triazine (abbreviated as TPT) was examined by cyclic voltammetry. The adsorbed TPT exhibited two irreversible reduction waves in the potential range of -0.7 and -1.0 V (vs. SCE). Upon strong adsorption, TPT can serve as a coordination ligand for copper ions to form a surface complex. Its three adjacent nitrogen positions provide strong affinity to the metal ions and bond copper(II) to an electrode surface. A 1:1 coordination between Cu(II) or Cu(I) and the TPT ligand to form [Cu(II)(TPT)]2+ or [Cu(I)(TPT)]+ is the predominant process, evidenced by spectrophotometry, surface cyclic voltammetry, and coordinated structural feasibility of Cu(II)/Cu(I)-TPT complexes. The predominant copper(II)-TPT surface complex shows a reversible redox wave, which is identified as 1-electron process of [Cu(II)(TPT)]2+ ⇔ [Cu(I)(TPT)]+. The electrode adsorbed by [Cu(II)(TPT)]2+ complex showed electrocatalytic activity towards oxygen and/or hydrogen peroxide redns. The **catalyzed** reduction of oxygen and hydrogen peroxide were identified as four-electron and two-electron process to form water. Probably the possible electrocatalytic redns. were due to an inner-sphere mechanism, which involved a coordination between substrate (O2 or H2O2) and [Cu(I)(TPT)]+. The reduction kinetics were also studied by a rotating disk electrode method.

IT **116868-55-4P**
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
RN 116868-55-4 HCAPLUS
CN Copper(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
Section cross-reference(s): 72, 76

IT Redox reaction
Reduction, electrochemical
Surface reaction **catalysts**
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

IT Reduction kinetics
(electrochem.; electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

IT Cyclic voltammetry
(of TPT and TPT-Cu complexes adsorbed onto graphite electrodes; electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

IT Coordination compounds
(reaction mechanism involving; electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

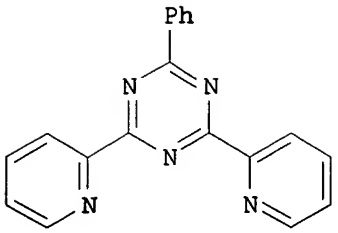
IT Electrodes
(rotating disk electrodes; electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

IT 7722-84-1, Hydrogen peroxide, processes 7782-44-7, Oxygen, processes
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)

IT 64-19-7, Acetic acid, uses 7601-89-0, Sodium perchlorate 7664-38-2, Phosphoric acid, uses 10043-35-3, Boric acid, uses
(electrochem. reduction of oxygen and hydrogen peroxide

**catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT 286832-00-6
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT **116868-55-4P**
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT 1310-73-2, Sodium hydroxide, uses
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT 3682-35-7, 2,4,6-Tris(2-pyridyl)-1,3,5-triazine
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT 7782-42-5, Graphite, uses
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
IT 7758-98-7, Cupric sulfate, reactions
(electrochem. reduction of oxygen and hydrogen peroxide **catalyzed** by surface copper(II)-2,4,6-tris(2-pyridyl)-1,3,5-triazine complex adsorbed on graphite electrode)
REFERENCE COUNT: 14 THERE ARE 14 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 7 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:693087 HCAPLUS
DOCUMENT NUMBER: 141:359869
TITLE: Ruthenium complexes of easily accessible tridentate ligands based on the 2-aryl-4,6-bis(2-pyridyl)-s-triazine motif: Absorption spectra, luminescence properties, and redox behavior
AUTHOR(S): Polson, Matthew I. J.; Medlycott, Elaine A.; Hanan, Garry S.; Mikelsons, Larisa; Taylor, Nick J.; Watanabe, Masashi; Tanaka, Yasutaka; Loiseau, Frederique; Passalacqua, Rosalba; Campagna, Sebastiano
CORPORATE SOURCE: Departement de Chimie, Universite de Montreal, Montreal, QC, H3T 1J4, Can.
SOURCE: Chemistry--A European Journal (2004), 10(15), 3640-3648
CODEN: CEUJED; ISSN: 0947-6539
PUBLISHER: Wiley-VCH Verlag GmbH & Co. KGaA
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:359869
GI

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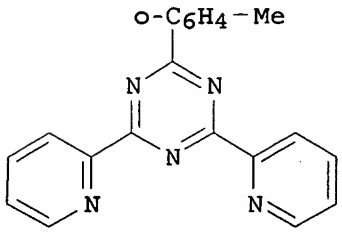
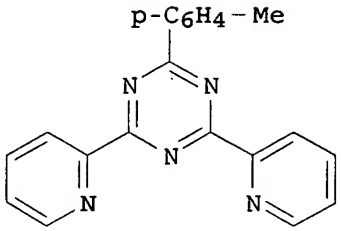



II



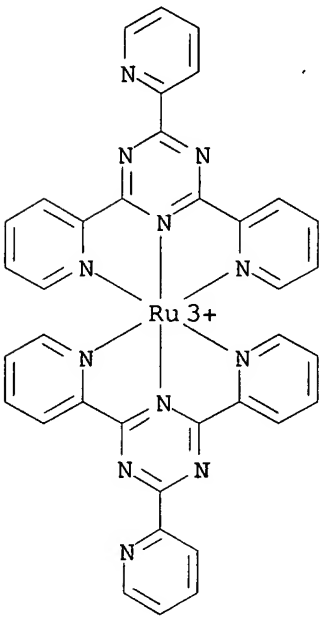

III

AB A family of tridentate ligands 1a-e (I-III), based on the 2-aryl-4,6-di(2-pyridyl)-s-triazine motif, was prepared along with their hetero- and homoleptic RuII complexes 2a-e ([Ru(tpy)(1a-e)]2+; tpy = 2,2':6',2''-terpyridine) and 3a-e ([Ru(1a-e)2]2+), resp. The ligands and their complexes were characterized by 1H NMR spectroscopy, ES-MS, and elemental anal. Single-crystal x-ray anal. of 2a and 2e demonstrated that the triazine core is nearly coplanar with the noncoordinating ring, with dihedral angles of 1.2 and 18.6°, resp. The redox behavior and electronic absorption and luminescence properties (both at room temperature in liquid MeCN and at 77 K in butyronitrile rigid matrix) were studied. Each species undergoes one **oxidation** process centered on the metal ion, and several (three for 2a-e and four for 3a-e) reduction processes centered on the ligand orbitals. All compds. exhibit intense absorption bands in the UV region, assigned to spin-allowed ligand-centered (LC) transitions, and moderately intense spin-allowed metal-to-ligand charge-transfer (MLCT) absorption bands in the visible region. The compds. exhibit relatively intense emissions, originating from triplet MLCT levels, both at 77 K and at room temperature The incorporation of triazine rings and the near planarity of the noncoordinating ring increase the luminescence lifetimes of the complexes by lowering the energy of the 3MLCT state and creating a large energy gap to the dd state.

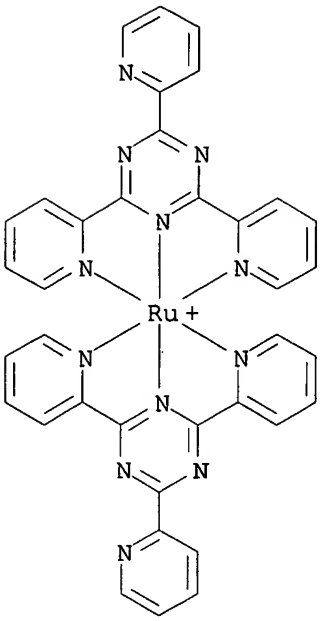
IT **21791-68-4 69666-63-3 69667-97-6 69730-33-2 774219-67-9 774219-68-0 774219-69-1 774219-70-4 774219-71-5 774219-72-6 774219-73-7 774219-74-8 774219-75-9 774219-76-0 774219-77-1 774219-78-2 774219-79-3 774219-80-6 774219-81-7 774219-82-8 774219-83-9 774219-84-0 774219-85-1 774219-86-2 774219-87-3 774219-88-4 774219-89-5 774219-90-8 774219-91-9 774219-92-0 774219-93-1 774219-94-2 774219-95-3**

**774219-96-4 774219-97-5 774219-98-6**
**774219-99-7 774220-00-7 774220-01-8**
**774220-02-9 774220-03-0 774220-04-1**
**774220-05-2 774220-06-3**
(formation and redox potential of)

RN 21791-68-4 HCAPLUS
CN Ruthenium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 69666-63-3 HCAPLUS
CN Ruthenium(1+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 69667-97-6 HCAPLUS
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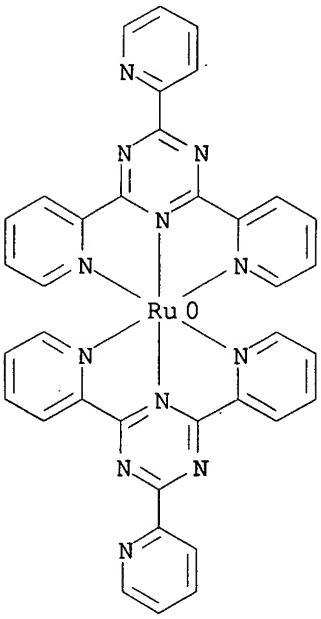
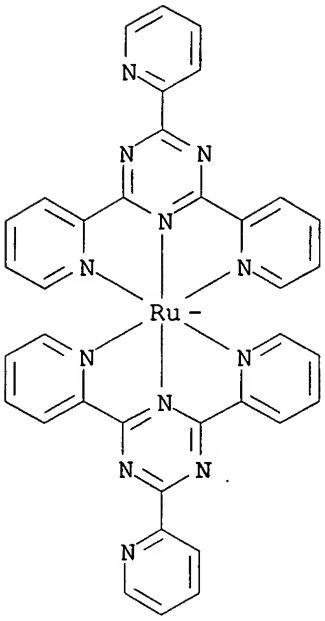
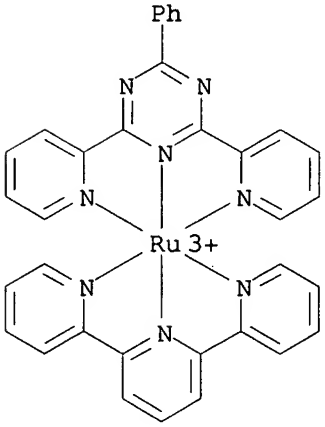


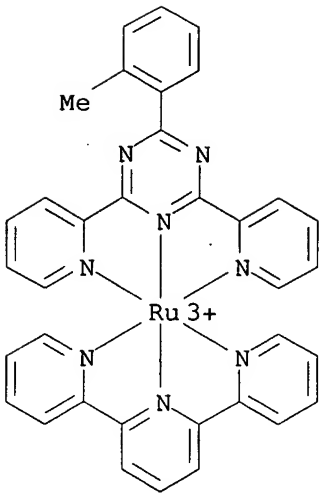
RN 69730-33-2 HCAPLUS
CN Ruthenate(1-), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



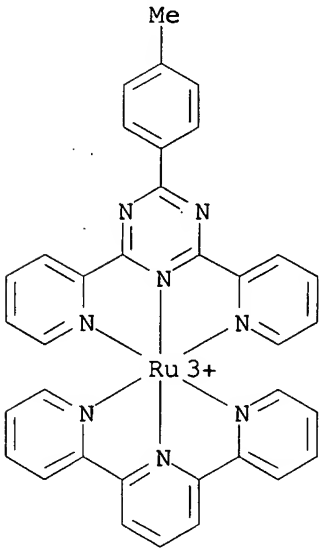
RN 774219-67-9 HCAPLUS
CN Ruthenium(3+), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



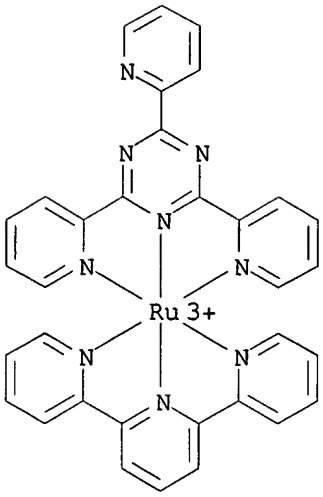
RN 774219-68-0 HCAPLUS
CN Ruthenium(3+), [2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



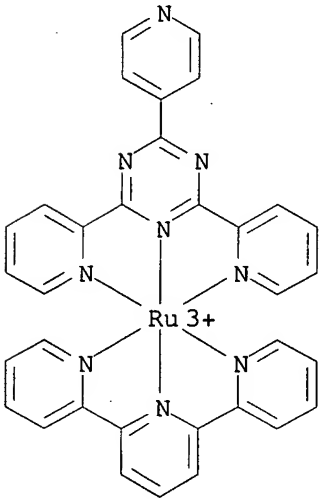

RN 774219-69-1 HCAPLUS
CN Ruthenium(3+), [2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



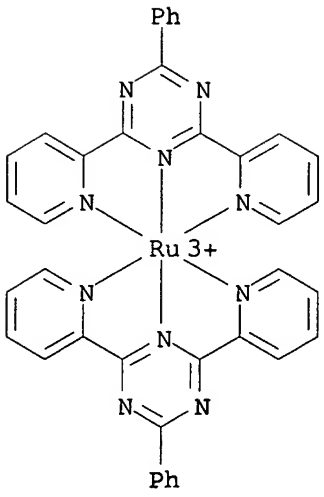

RN 774219-70-4 HCAPLUS
CN Ruthenium(3+), [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



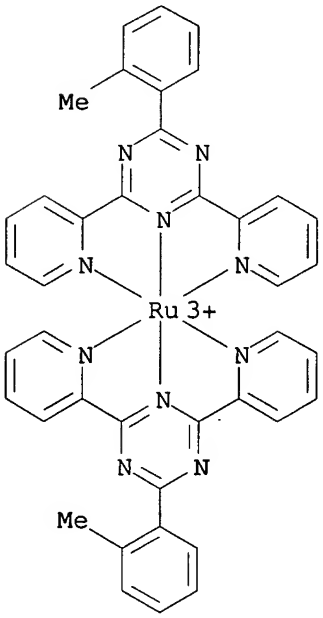

RN 774219-71-5 HCAPLUS
CN Ruthenium(3+), [2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)




RN 774219-72-6 HCAPLUS
CN Ruthenium(3+), bis[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

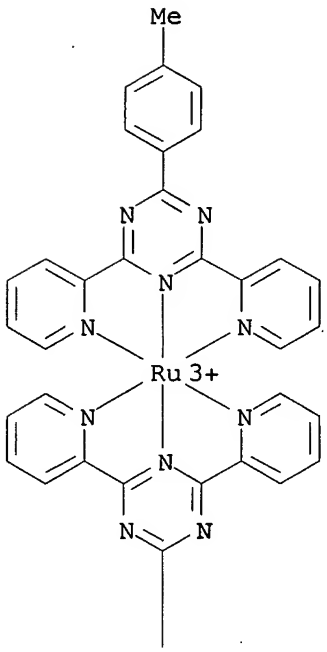



RN 774219-73-7 HCAPLUS
CN Ruthenium(3+), bis[4-(2-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774219-74-8 HCAPLUS
CN Ruthenium(3+), bis[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

PAGE 1-A

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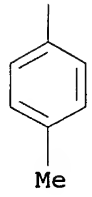
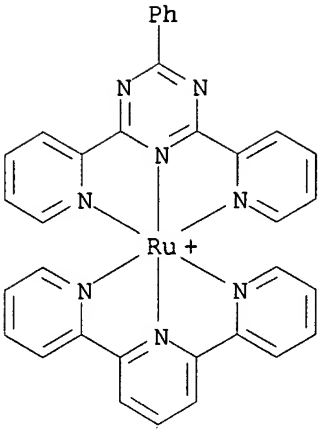
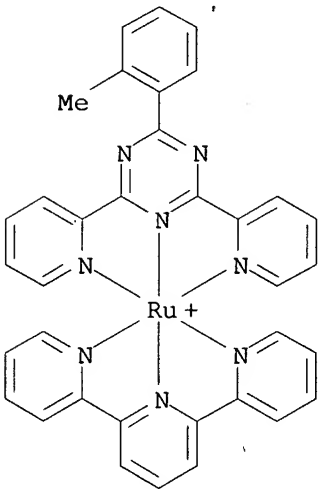


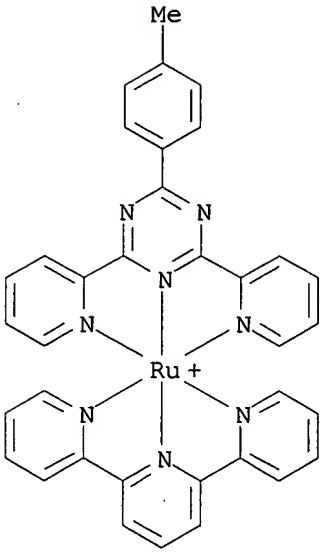

RN 774219-75-9 HCAPLUS
CN Ruthenium(1+), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



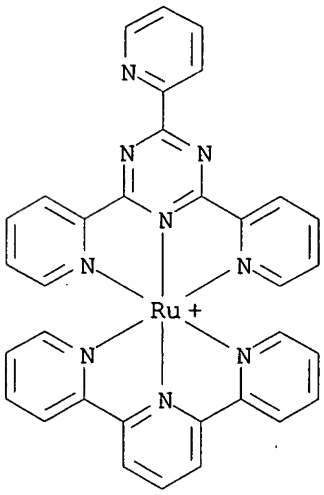

RN 774219-76-0 HCAPLUS
CN Ruthenium(1+), [2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



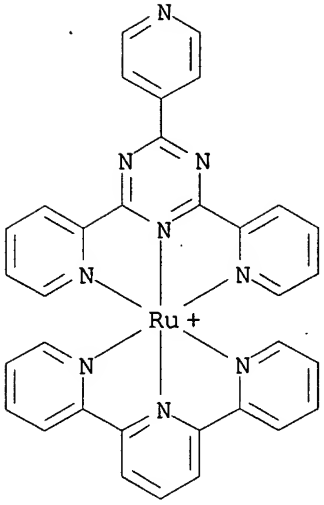

RN 774219-77-1 HCAPLUS
CN Ruthenium(1+), [2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



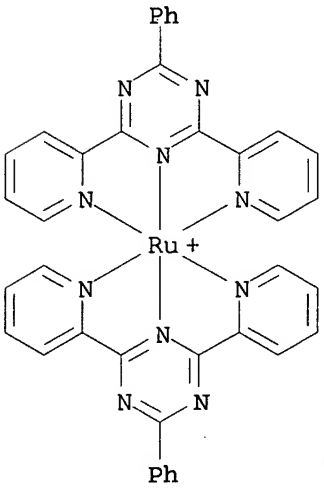

RN 774219-78-2 HCAPLUS
CN Ruthenium(1+), [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



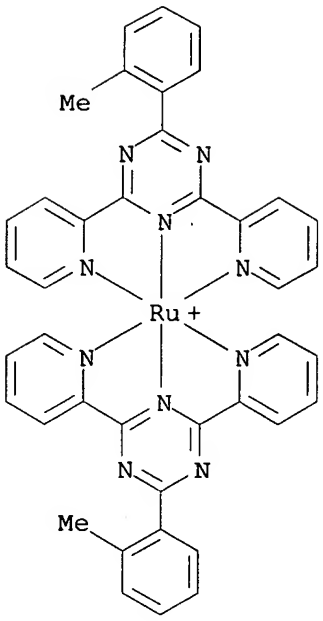

RN 774219-79-3 HCAPLUS
CN Ruthenium(1+), [2,4-di(2-pyridinyl-κN)-6-(4-pyridinyl)-1,3,5-triazine-κN3](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



RN 774219-80-6 HCAPLUS
CN Ruthenium(1+), bis[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 774219-81-7 HCAPLUS
CN Ruthenium(1+), bis[4-(2-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774219-82-8 HCAPLUS
CN Ruthenium(1+), bis[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

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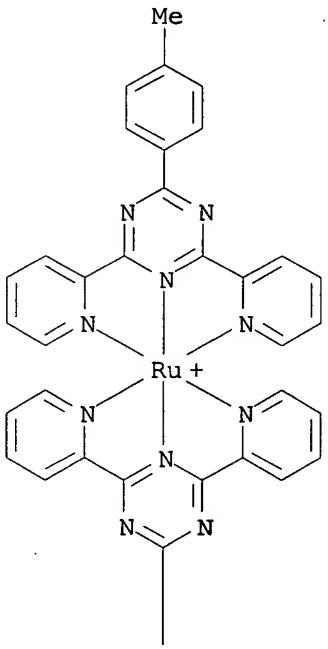

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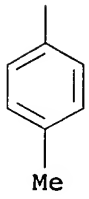
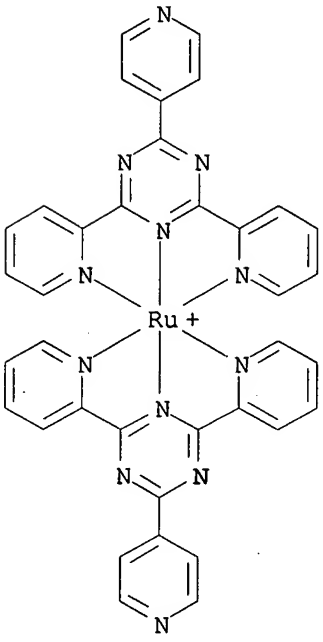
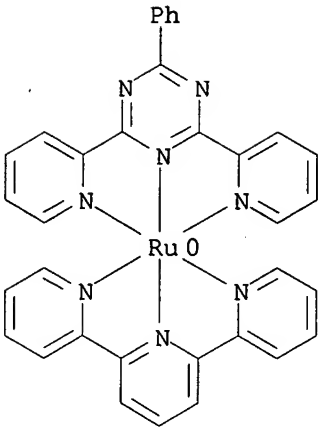


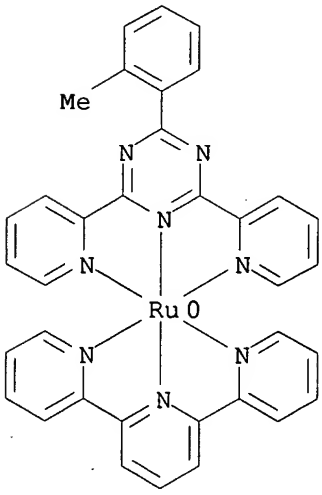

RN 774219-83-9 HCAPLUS
CN Ruthenium(1+), bis[2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



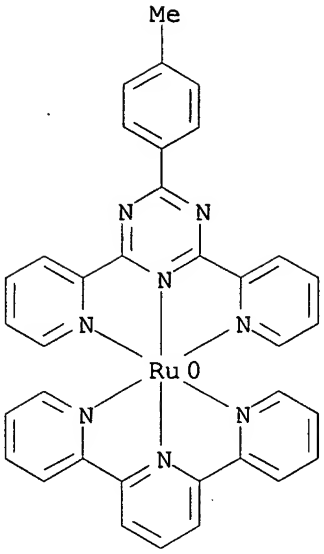

RN 774219-84-0 HCAPLUS
CN Ruthenium, [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



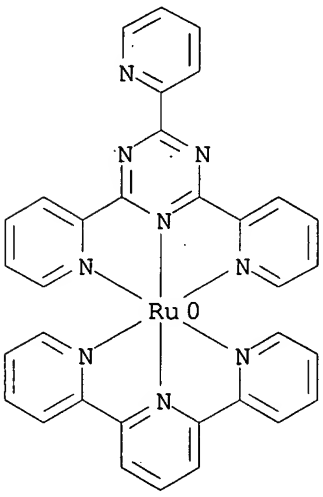

RN 774219-85-1 HCAPLUS
CN Ruthenium, [2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



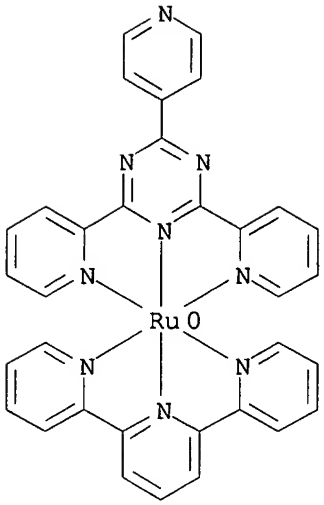

RN 774219-86-2 HCAPLUS
CN Ruthenium, [2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



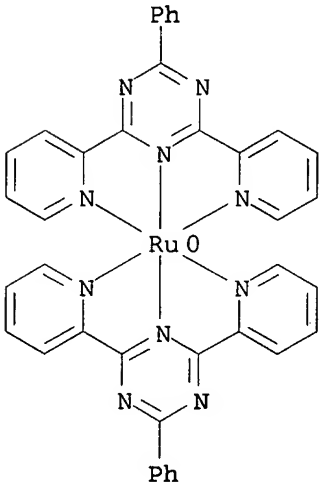

RN 774219-87-3 HCAPLUS
CN Ruthenium, [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



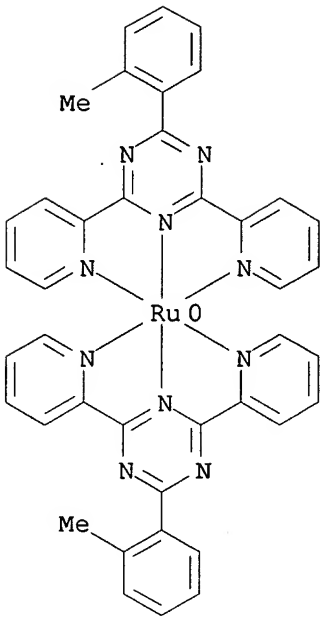

RN 774219-88-4 HCAPLUS
CN Ruthenium, [2,4-di(2-pyridinyl-κN)-6-(4-pyridinyl)-1,3,5-triazine-κN3](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



RN 774219-89-5 HCAPLUS
CN Ruthenium, bis[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 774219-90-8 HCAPLUS
CN Ruthenium, bis[4-(2-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774219-91-9 HCAPLUS
CN Ruthenium, bis[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

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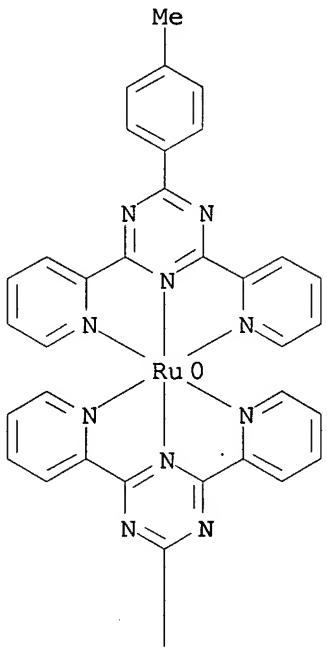

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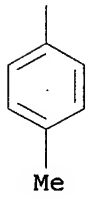
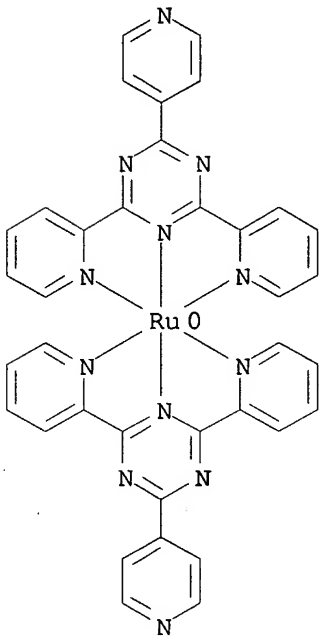
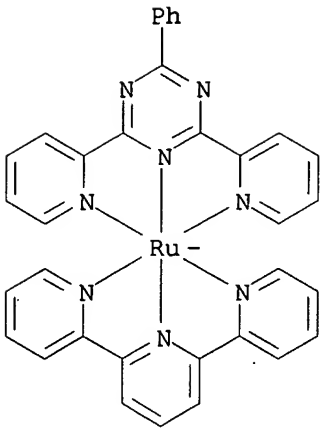


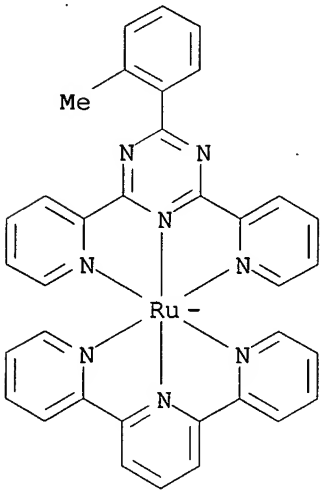

RN 774219-92-0 HCAPLUS
CN Ruthenium, bis[2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



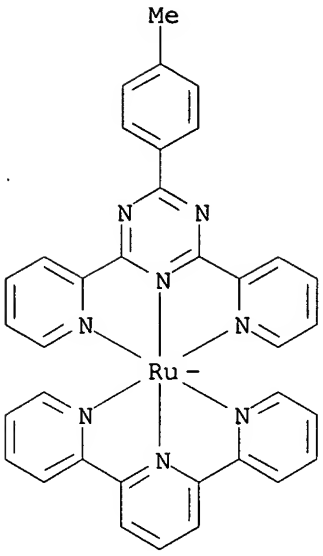

RN 774219-93-1 HCAPLUS
CN Ruthenate(1-), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



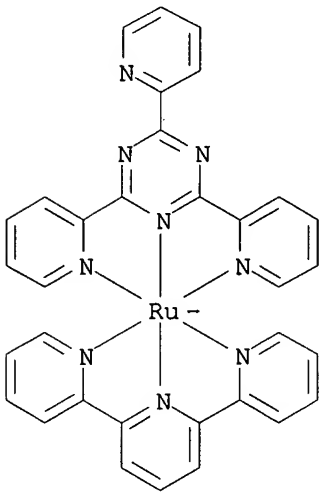

RN 774219-94-2 HCAPLUS
CN Ruthenate(1-), [2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



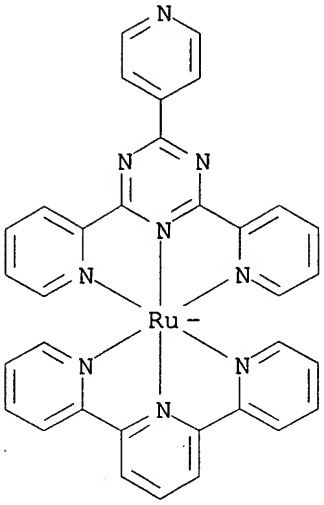

RN 774219-95-3 HCAPLUS
CN Ruthenate(1-), [2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



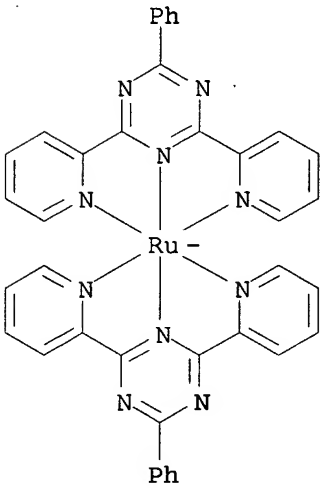

RN 774219-96-4 HCAPLUS
CN Ruthenate(1-), [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



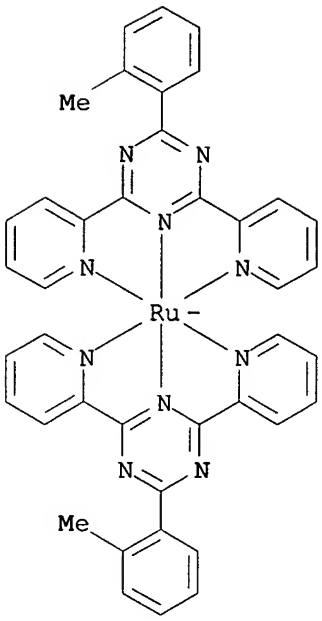

RN 774219-97-5 HCAPLUS
CN Ruthenate(1-), [2,4-di(2-pyridinyl-κN)-6-(4-pyridinyl)-1,3,5-triazine-κN3](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)



RN 774219-98-6 HCAPLUS
CN Ruthenate(1-), bis[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 774219-99-7 HCAPLUS
CN Ruthenate(1-), bis[4-(2-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774220-00-7 HCAPLUS
CN Ruthenate(1-), bis[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

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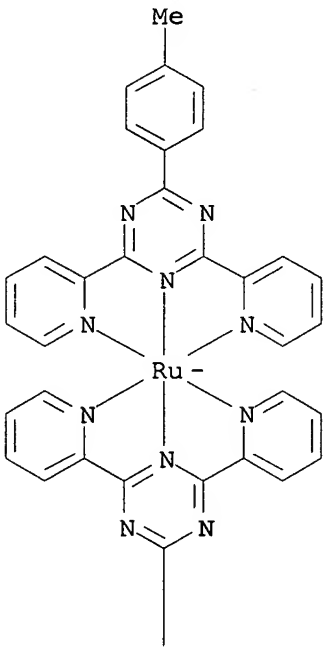

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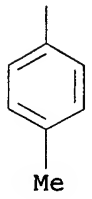
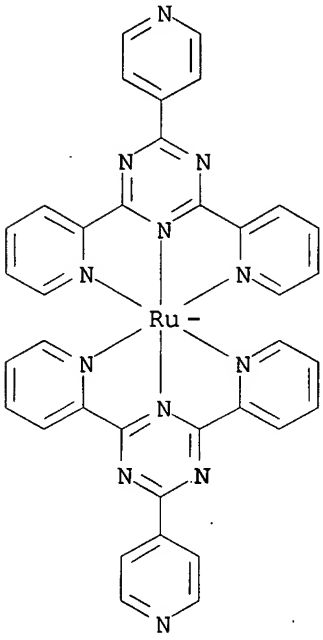
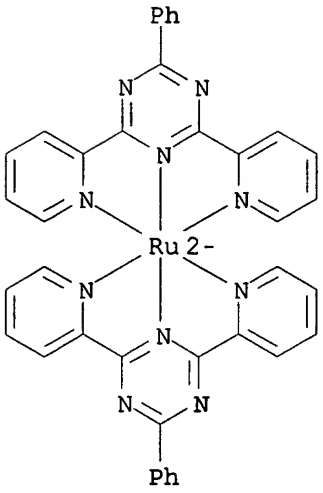


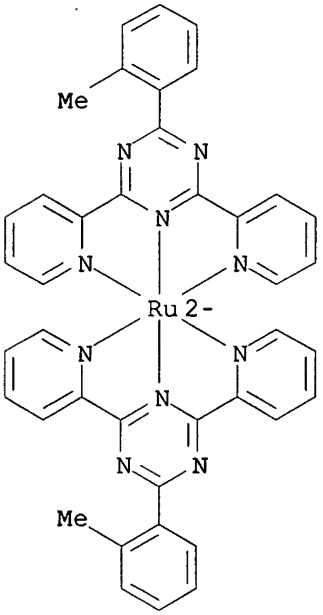

RN 774220-01-8 HCAPLUS
CN Ruthenate(1-), bis[2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774220-02-9 HCAPLUS
CN Ruthenate(2-), bis[4-phenyl-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774220-03-0 HCAPLUS
CN Ruthenate(2-), bis[4-(2-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774220-04-1 HCAPLUS
CN Ruthenate(2-), bis[4-(4-methylphenyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

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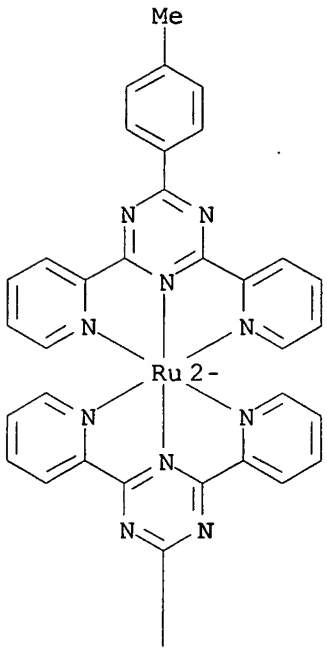


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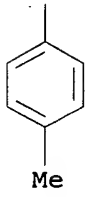
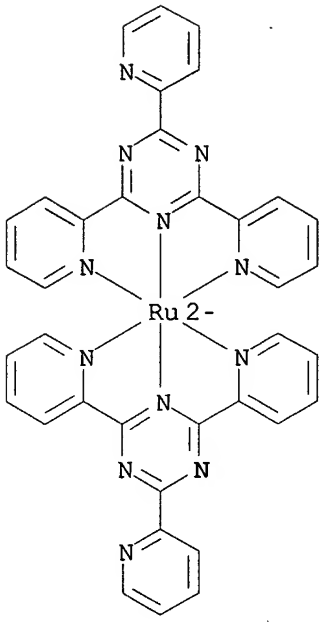
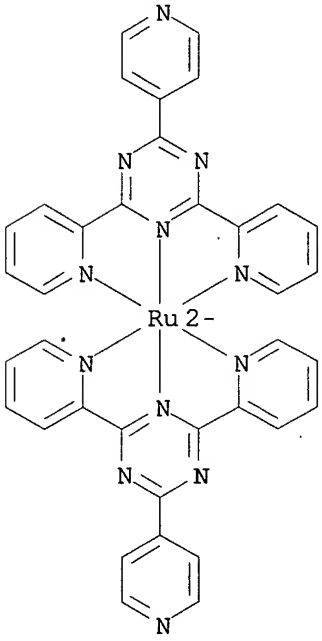



RN 774220-05-2 HCAPLUS
CN Ruthenate(2-), bis[4-(2-pyridinyl)-2,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 774220-06-3 HCAPLUS
CN Ruthenate(2-), bis[2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

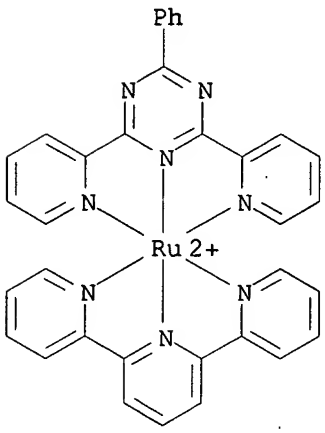



IT **461388-76-1P 774219-58-8P**
(preparation, crystal structure, cyclic voltammetry, luminescence and UV-visible spectra of)
RN 461388-76-1 HCAPLUS
CN Ruthenium(2+), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-

triazine-κN5](2,2':6',2''-terpyridine-
κN1,κN1',κN1'')-, (OC-6-23)-,
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

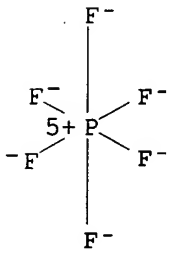
CM 1

CRN 461388-73-8
CMF C34 H24 N8 Ru
CCI CCS




CM 2

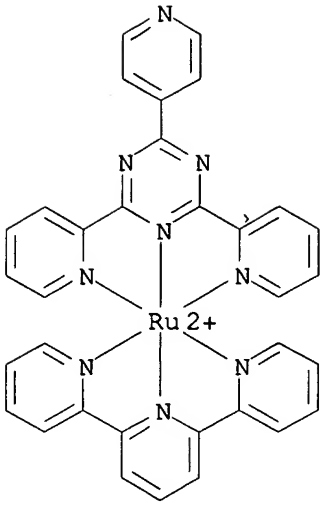
CRN 16919-18-9
CMF F6 P
CCI CCS




RN 774219-58-8 HCAPLUS
CN Ruthenium(2+), [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-
triazine-κN1](2,2':6',2''-terpyridine-
κN1,κN1',κN1'')-, (OC-6-23)-,
bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

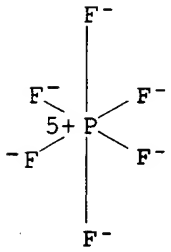
CM 1

CRN 461388-74-9
CMF C33 H23 N9 Ru
CCI CCS



CM 2

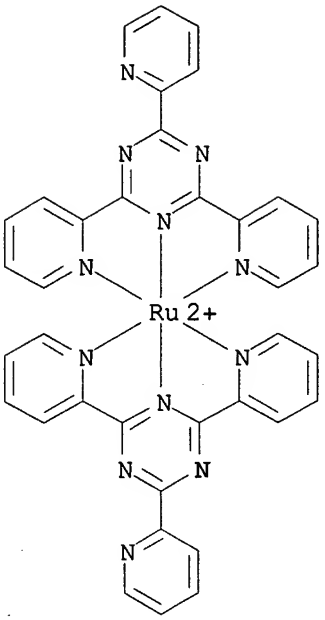
CRN 16919-18-9
CMF F6 P
CCI CCS



IT **75964-99-7P 774219-62-4P 774219-64-6P**
(preparation, cyclic voltammetry, and UV-visible spectrum of)
RN 75964-99-7 HCAPLUS
CN Ruthenium(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

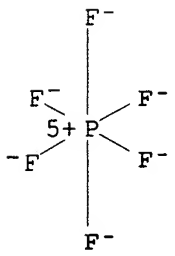
CM 1

CRN 61037-16-9
CMF C36 H24 N12 Ru
CCI CCS



CM 2

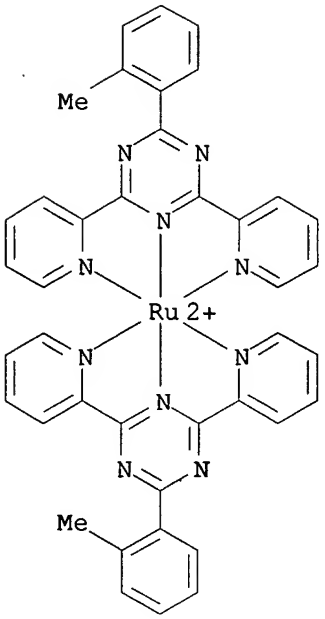
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 774219-62-4 HCAPLUS
CN Ruthenium(2+), bis[2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

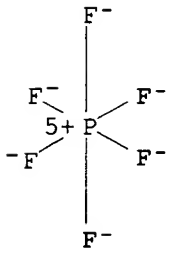
CM 1

CRN 774219-61-3
CMF C40 H30 N10 Ru
CCI CCS




CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

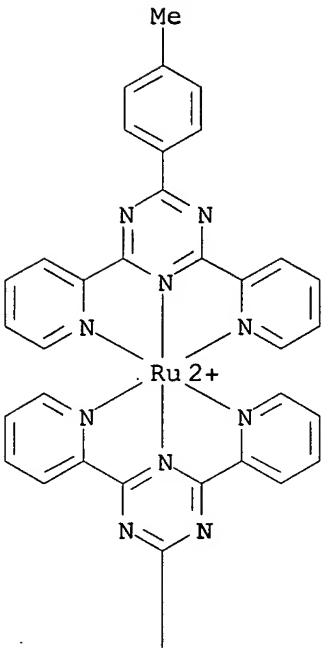



RN 774219-64-6 HCAPLUS
CN Ruthenium(2+), bis[2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

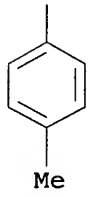
CM 1

CRN 774219-63-5
CMF C40 H30 N10 Ru
CCI CCS

PAGE 1-A

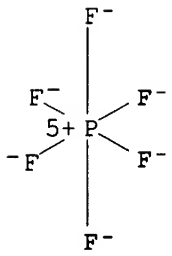



PAGE 2-A




CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

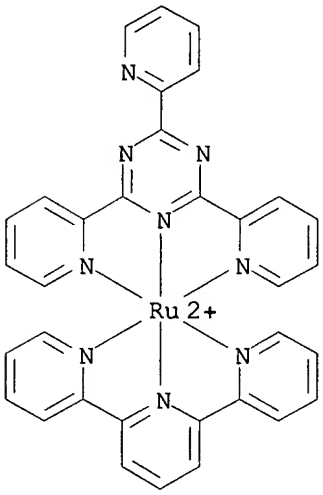


IT **134388-06-0P 774219-55-5P 774219-57-7P**
**774219-60-2P 774219-66-8P**
(preparation, cyclic voltammetry, luminescence and UV-visible spectra of)

RN 134388-06-0 HCAPLUS
CN Ruthenium(2+), (2,2':6',2''-terpyridine-κN1,κN1',κN1'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-κN1,κN2,κN6)-, (OC-6-23)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

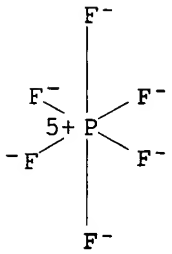
CM 1

CRN 134388-05-9
CMF C33 H23 N9 Ru
CCI CCS




CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

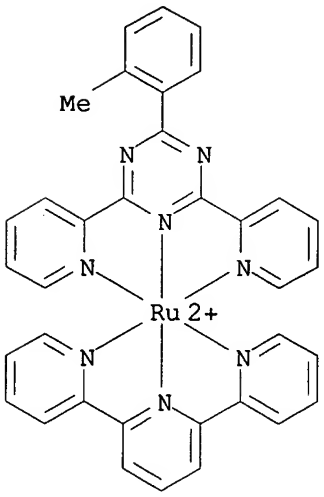



RN 774219-55-5 HCAPLUS
CN Ruthenium(2+), [2-(2-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)-,

bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

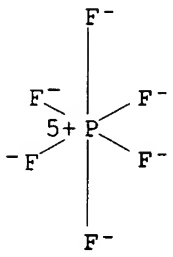
CM 1

CRN 774219-54-4
CMF C35 H26 N8 Ru
CCI CCS




CM 2

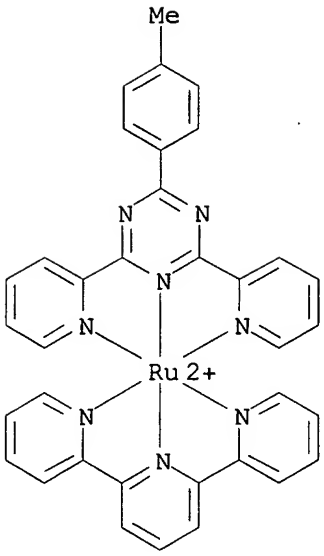
CRN 16919-18-9
CMF F6 P
CCI CCS




RN 774219-57-7 HCAPLUS
CN Ruthenium(2+), [2-(4-methylphenyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

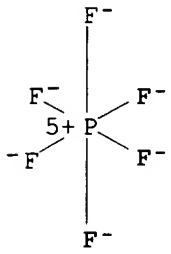
CM 1

CRN 774219-56-6
CMF C35 H26 N8 Ru
CCI CCS




CM 2

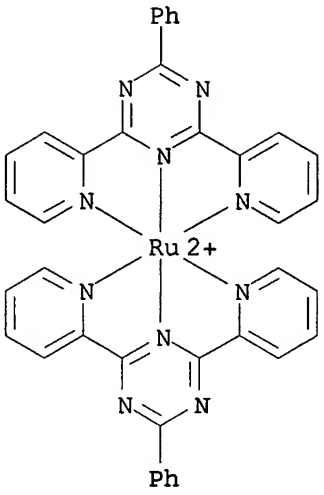
CRN 16919-18-9
CMF F6 P
CCI CCS




RN 774219-60-2 HCAPLUS
CN Ruthenium(2+), bis[2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

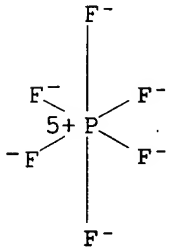
CM 1

CRN 774219-59-9
CMF C38 H26 N10 Ru
CCI CCS



CM 2

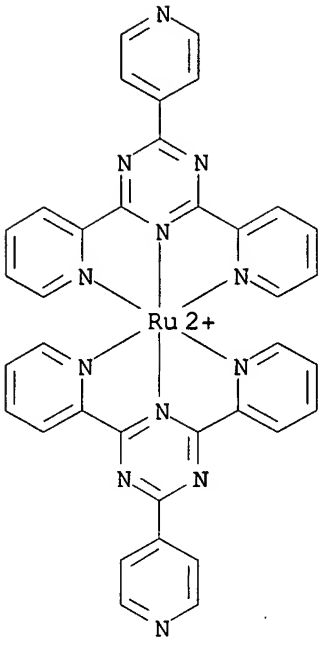
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 774219-66-8 HCAPLUS
CN Ruthenium(2+), bis[2,6-di(2-pyridinyl-κN)-4-(4-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

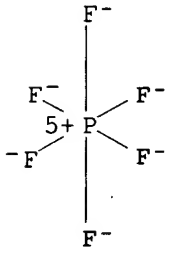
CM 1

CRN 774219-65-7
CMF C36 H24 N12 Ru
CCI CCS

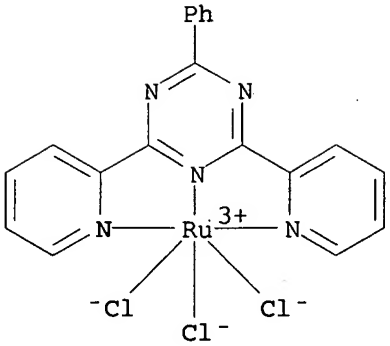


CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



IT **873216-50-3P**
(preparation, cyclic voltammetry, luminescence and UV-visible spectra of)
RN 873216-50-3 HCAPLUS
CN INDEX NAME NOT YET ASSIGNED




CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 73, 75
IT **21791-68-4 69666-63-3 69667-97-6 69730-33-2 774219-67-9 774219-68-0 774219-69-1 774219-70-4 774219-71-5 774219-72-6 774219-73-7 774219-74-8 774219-75-9 774219-76-0 774219-77-1 774219-78-2 774219-79-3 774219-80-6 774219-81-7 774219-82-8 774219-83-9 774219-84-0 774219-85-1 774219-86-2 774219-87-3 774219-88-4 774219-89-5 774219-90-8 774219-91-9 774219-92-0 774219-93-1 774219-94-2 774219-95-3 774219-96-4 774219-97-5 774219-98-6 774219-99-7 774220-00-7 774220-01-8 774220-02-9 774220-03-0 774220-04-1 774220-05-2 774220-06-3**
(formation and redox potential of)
IT **461388-76-1P 774219-58-8P**
(preparation, crystal structure, cyclic voltammetry, luminescence and UV-visible spectra of)
IT **75964-99-7P 774219-62-4P 774219-64-6P**
(preparation, cyclic voltammetry, and UV-visible spectrum of)
IT **134388-06-0P 774219-55-5P 774219-57-7P 774219-60-2P 774219-66-8P**
(preparation, cyclic voltammetry, luminescence and UV-visible spectra of)
IT **873216-50-3P**
(preparation, cyclic voltammetry, luminescence and UV-visible spectra of)
REFERENCE COUNT: 61 THERE ARE 61 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 8 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:443925 HCAPLUS
DOCUMENT NUMBER: 141:166707
TITLE: Potential inhibitors of DNA topoisomerase II: ruthenium(II) poly-pyridyl and pyridyl-azine complexes
AUTHOR(S): Chandra, Manish; Sahay, A. N.; Pandey, D. S.; Tripathi, R. P.; Saxena, J. K.; Reddy, V. J. M.; Puerta, M. Carmen; Valerga, Pedro
CORPORATE SOURCE: Department of Chemistry, Awadhesh Pratap Singh University, Rewa, 486 003, India

SOURCE: Journal of Organometallic Chemistry (2004), 689(13), 2256-2267
CODEN: JORCAI; ISSN: 0022-328X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:166707

AB In search of new DNA probes new mono and binuclear cationic complexes [RuH(CO)(PPh3)2(L)]+ and [RuH(CO)(PPh3)2(-μ-L)RuH(CO)(PPh3)2]2+ [L = pyridine-2-carbaldehyde azine (paa), p-phenylene-bis(picoline)aldimine (pbp) and p-biphenylene-bis(picoline)aldimine (bbp)] were synthesized. The reaction products were characterized by microanalyses, spectral (IR, UV-visible, NMR and ESMS and FAB-MS) and electrochem. studies. Structure of the representative mononuclear complex [RuH(CO)(PPh3)2(paa)]BF4 was crystallog. determined The crystal packing in [RuH(CO)(PPh3)2(paa)]BF4 is stabilized by intermol. π-π stacking resulting into a spiral network. Topoisomerase II inhibitory activity of the complexes and a few other related complexes [RuH(CO)(PPh3)2(L)]+ {L = 2,4,6-tris(2-pyridyl)-1,3,5-triazine (tptz) and 2,3-bis(2-pyridyl)-pyrazine (bppz)} were examined against filarial parasite Setaria cervi. Absorption titration expts. provided good support for DNA interaction and binding consts. also were calculated which were found in the range 1.2 + 103-4.01 + 104 M-1.

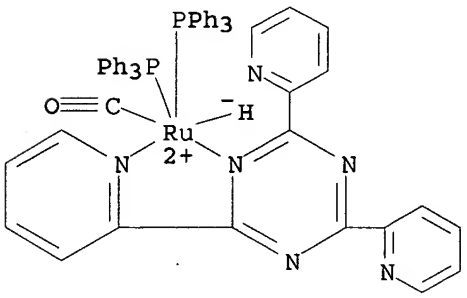
IT **442848-09-1**
(effect on DNA Topoisomerase II activity of s. cervi)

RN 442848-09-1 HCAPLUS

CN Ruthenium(1+), carbonylhydro[2-(2-pyridinyl-κN)-4,6-di-2-pyridinyl-1,3,5-triazine-κN1]bis(triphenylphosphine)-, (OC-6-15)-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

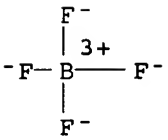
CM 1

CRN 442848-08-0
CMF C55 H43 N6 O P2 Ru
CCI CCS




CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 10, 68, 72, 75
IT **442848-09-1** 442848-12-6 442848-14-8
(effect on DNA Topoisomerase II activity of s. cervi)
REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 9 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:392560 HCAPLUS
DOCUMENT NUMBER: 140:408669
TITLE: Use of metal complex compounds as **oxidation catalysts**
INVENTOR(S): Schlingloff, Gunther; Wieprecht, Torsten; Heinz, Uwe; Schneider, Albert; Dubs, Marie-Josee; Bachmann, Frank; Hazenkamp, Menno; Ehlis, Thomas; Vincenzi, Cornelia; Dannacher, Josef
PATENT ASSIGNEE(S): Ciba Specialty Chemicals Holding Inc., Switz.; et al.
SOURCE: PCT Int. Appl., 94 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2004039934 | A1 | 20040513 | WO 2003-EP11636 | 2003 1021 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| AU 2003278117 | A1 | 20040525 | AU 2003-278117 | 2003 1021 |
| EP 1556467 | A1 | 20050727 | EP 2003-769428 | 2003 1021 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, | | | | |

| | | | | |
|---|---|---|---|---|
| EE, HU, SK | | | | |
| BR 2003015869 | A | 20050927 | BR 2003-15869 | 2003 1021 |
| JP 2006504517 | T2 | 20060209 | JP 2004-547539 | 2003 1021 |
| US 2006052265 | A1 | 20060309 | US 2005-531906 | 2005 0418 |
| PRIORITY APPLN. INFO.: | | | EP 2002-405929 A | 2002 1030 |
| | | | WO 2003-EP11636 W | 2003 1021 |

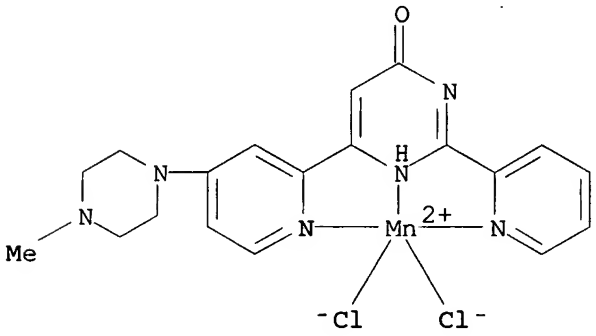
OTHER SOURCE(S): MARPAT 140:408669

AB The invention relates to the use of metal complex compds. of formula [LnMemXp]zYq [X = coordinating or bridging radical; n, m = 1-8; p = 0-32; z = charge of metal complex; Me = metals; Y = counter ions; q = z/(charge of Y); L = specified ligands] as **catalysts** for **oxidation** reactions particularly by peroxides such as in textile bleaching without damaging fibers and dyeings, and also novel metal complex compds. and novel ligands.

IT **860469-44-9P 860469-45-0P**
(manufacture and use of metal complex compds. as **oxidation catalysts**)

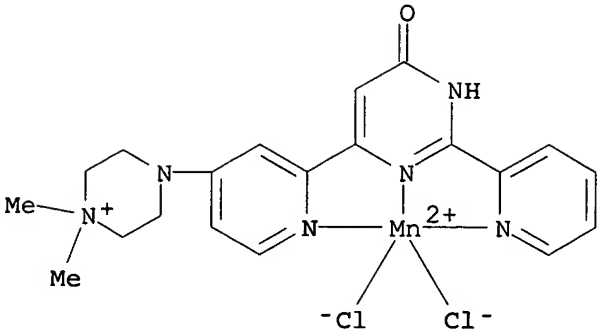
RN 860469-44-9 HCAPLUS

CN Manganese, dichloro[6-[4-(4-methyl-1-piperazinyl)-2-pyridinyl-κN]-2-(2-pyridinyl-κN)-4(1H)-pyrimidinone-κN1]- (9CI) (CA INDEX NAME)




RN 860469-45-0 HCAPLUS

CN Manganese(1+), dichloro[4-[2-[1,6-dihydro-6-oxo-2-(2-pyridinyl-κN)-4-pyrimidinyl-κN3]-4-pyridinyl-κN]-1,1-dimethylpiperazinium]-, iodide (9CI) (CA INDEX NAME)



● $I^-$

IC ICM C11D003-395
ICS C11D003-16; C07D401-14; C11D003-39
CC 46-5 (Surface Active Agents and **Detergents**)
Section cross-reference(s): 40, 43, 78
ST **oxidn catalyst** metal complex
IT Textiles
(cotton; manufacture and use of metal complex compds. as **oxidation catalysts**)
IT Bleaching
**Oxidation catalysts**
Pulp bleaching
Textiles
(manufacture and use of metal complex compds. as **oxidation catalysts**)
IT 7722-84-1, Hydrogen peroxide, uses 7782-44-7, Oxygen, uses
(bleaching agent; manufacture and use of metal complex compds. as **oxidation catalysts**)
IT 688753-55-1P
(ligands; manufacture and use of metal complex compds. as **oxidation catalysts**)
IT **860469-44-9P 860469-45-0P**
(manufacture and use of metal complex compds. as **oxidation catalysts**)
IT 19235-89-3P, 4-Chloro-2-cyanopyridine 64064-56-8P, 4-Chloropyridine-2-carboxylic acid ethyl ester 75239-97-3P 99586-65-9P 688753-53-9P 688753-54-0P 688753-56-2P 688753-57-3P 688753-58-4P 688753-59-5P 688753-60-8P 688753-61-9P 688753-62-0P
(manufacture and use of metal complex compds. as **oxidation catalysts**)
IT 50-01-1, Guanidine hydrochloride 57-13-6, Urea, reactions 64-17-5, Ethanol, reactions 98-98-6, Picolinic acid 100-70-9, 2-Cyanopyridine 109-01-3, 1-Methylpiperazine 141-78-6, Ethyl acetate, reactions 1336-21-6, Ammonium hydroxide 10239-68-6 12125-02-9, Ammonium chloride, reactions 51285-26-8, 2-Amidinopyridine hydrochloride
(manufacture and use of metal complex compds. as **oxidation catalysts**)
IT 7646-69-7, Sodium hydride 7719-09-7, Thionyl chloride
(manufacture and use of metal complex compds. as **oxidation catalysts**)

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 10 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2003:551674 HCAPLUS
DOCUMENT NUMBER: 139:114098
TITLE: Method and reagent for colorimetry using transition metal complex and oxidoreductase
INVENTOR(S): Nagakawa, Kenji; Tsujimoto, Tomomichi; Nishino, Susumu; Teramoto, Masaaki; Kawase, Yoshiyuki
PATENT ASSIGNEE(S): Arkray, Inc., Japan
SOURCE: PCT Int. Appl., 58 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| WO 2003057905 | A1 | 20030717 | WO 2003-JP27 | 20030106 |
| W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW | | | | |
| RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG | | | | |
| CA 2448128 | AA | 20030628 | CA 2003-2448128 | 20030106 |
| AU 2003201901 | A1 | 20030724 | AU 2003-201901 | 20030106 |
| CN 1522302 | A | 20040818 | CN 2003-800604 | 20030106 |
| EP 1457572 | A1 | 20040915 | EP 2003-700461 | 20030106 |
| R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK | | | | |
| NZ 529279 | A | 20051223 | NZ 2003-529279 | 20030106 |
| ZA 2003008519 | A | 20041104 | ZA 2003-8519 | 20031031 |
| US 2004142406 | A1 | 20040722 | US 2003-476298 | |

PRIORITY APPLN. INFO.: JP 2001-400380 A 2001 1228

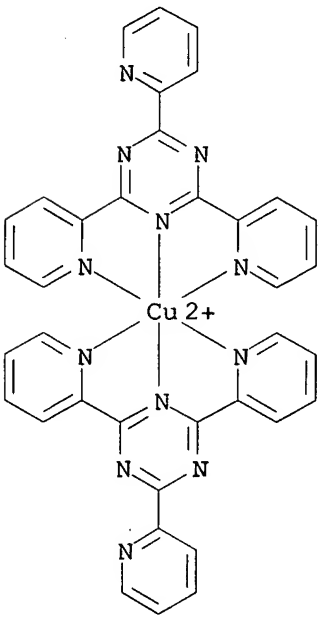
WO 2003-JP27 W 2003 0106

AB A method for colorimetry of an analyte (e.g., glucose, cholesterol, uric acid, pyruvic acid, lactic acid) is provided, with which reliable analyses are easily performed in a short time. The analyte is qual. or quant. determined by transferring electrons via a mediator with an oxidoreductase from the analyte to a color forming agent capable of forming a color by reduction, and measuring the color developed from the color forming agent. Since the enzymic reaction of this colorimetry is an one-step reaction and the coloring reaction is generated via an mediator, measurements are performed within a short time. The measurement values are highly reliable because this reaction needs neither hydrogen peroxide nor oxygen. Also provided is a reagent used in this method.

IT **116868-55-4P 321358-74-1P**
(method and reagent for colorimetry using transition metal complex and oxidoreductase)

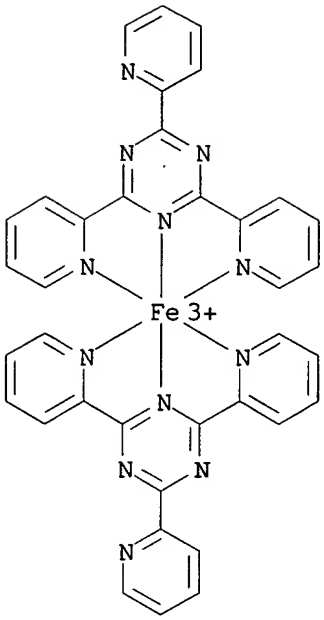
RN 116868-55-4 HCAPLUS

CN Copper(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 321358-74-1 HCAPLUS

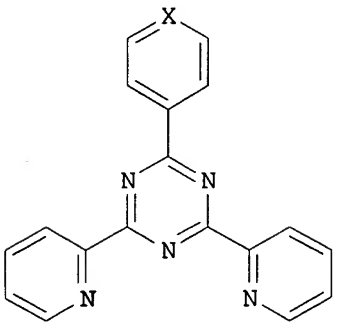
CN Iron(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




IC ICM C12Q001-32
ICS G01N021-78; G01N031-22; G01N033-52
CC 9-5 (Biochemical Methods)
IT Blood analysis
Color formers
Colorimetry
Electron transfer **catalysts**
UV and visible spectroscopy
(method and reagent for colorimetry using transition metal complex and oxidoreductase)
IT 131-91-9DP, Fe3+ complexes 2066-93-5DP, Fe3+ complexes
13479-49-7P 14971-82-5P 15823-71-9P 18661-69-3P
29676-71-9DP, Fe3+ complexes 53204-05-0P 73562-37-5P
80459-15-0DP, Fe3+complexes 80459-17-2DP, Fe3+ complexes
**116868-55-4P** 128653-82-7P 139542-74-8DP, Fe3+
complexes 144975-47-3P 144975-48-4P 205445-01-8P
**321358-74-1P** 554429-11-7P 562864-75-9P 562864-76-0P
562864-77-1P 562864-79-3P 562867-30-5P 562868-04-6P
562868-06-8P
(method and reagent for colorimetry using transition metal complex and oxidoreductase)
REFERENCE COUNT: 10 THERE ARE 10 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 11 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:460743 HCAPLUS
DOCUMENT NUMBER: 137:256806
TITLE: Facile syntheses of tridentate ligands for room-temperature luminescence in ruthenium complexes
AUTHOR(S): Polson, Matthew I. J.; Taylor, Nicholas J.; Hanan, Garry S.
CORPORATE SOURCE: Department of Chemistry, University of Waterloo, Waterloo, Can.
SOURCE: Chemical Communications (Cambridge, United

Kingdom) (2002), (13), 1356-1357
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:256806
GI



I

AB A new family of easily prepared and functionalized terpyridine-like ligands exhibit room-temperature luminescence as their Ru(II) complexes. Results of the luminescence, UV-visible and cyclic voltammetric studies of Ru(tpy)(L) (tpy = terpyridine, L = I, X = CH, N, N+-Me) are reported.

IT **461388-77-2P**
(preparation and crystal structure)

RN 461388-77-2 HCAPLUS

CN Ruthenium(2+), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)-, bis[hexafluorophosphate(1-)], compd. with acetonitrile (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 75-05-8
CMF C2 H3 N

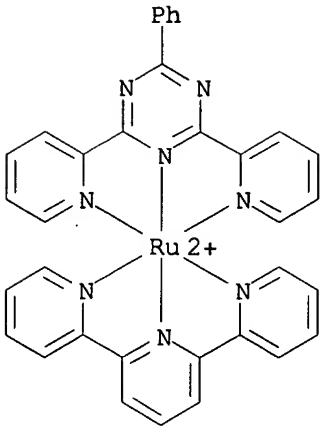
$H_3C-C\equiv N$

CM 2

CRN 461388-76-1
CMF C34 H24 N8 Ru . 2 F6 P

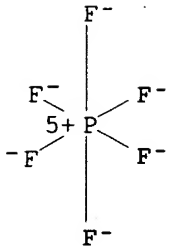
CM 3

CRN 461388-73-8
CMF C34 H24 N8 Ru
CCI CCS

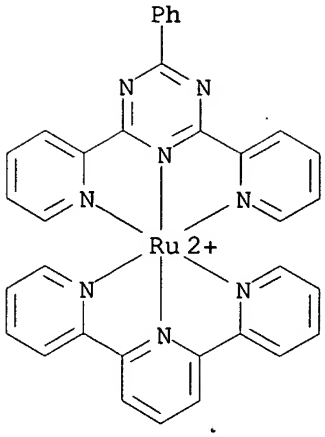



CM 4

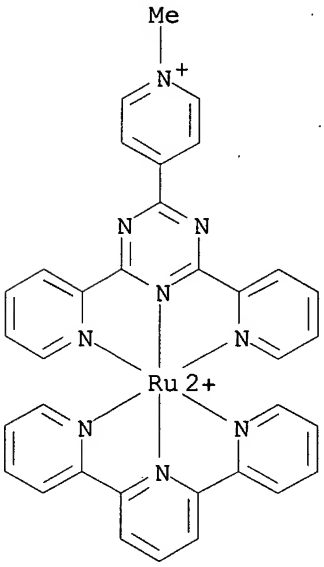
CRN 16919-18-9
CMF F6 P
CCI CCS



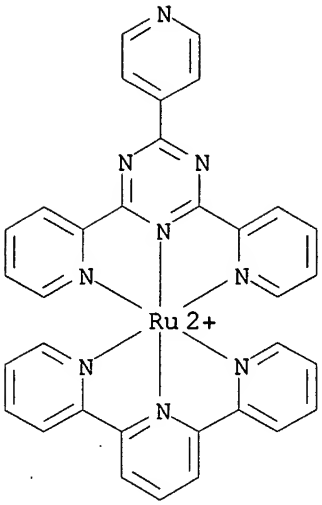

IT **461388-73-8P 461388-75-0P**
(preparation, cyclic voltammetry and luminescence)
RN 461388-73-8 HCAPLUS
CN Ruthenium(2+), [2-phenyl-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN5](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)




RN 461388-75-0 HCAPLUS
CN Ruthenium(3+), [4-[4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-yl-κN5]-1-methylpyridinium](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)




IT **461388-74-9P**
(preparation, pyridyl methylation, cyclic voltammetry and luminescence)
RN 461388-74-9 HCAPLUS
CN Ruthenium(2+), [2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1](2,2':6',2''-terpyridine-κN1,κN1',κN1'')-, (OC-6-23)- (9CI) (CA INDEX NAME)




CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 28, 72, 73, 75
IT Luminescence
**Oxidation**, electrochemical
Redox potential
Reduction, electrochemical
(of ruthenium pyridyltriazine terpyridine complexes)
IT **461388-77-2P**
(preparation and crystal structure)
IT **461388-73-8P 461388-75-0P**
(preparation, cyclic voltammetry and luminescence)
IT **461388-74-9P**
(preparation, pyridyl methylation, cyclic voltammetry and luminescence)
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 12 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2002:175825 HCAPLUS
DOCUMENT NUMBER: 137:118494
TITLE: Synthetic, spectral and structural aspects of some mono- and binuclear (homo/hetero) Ru(II) hydrido carbonyl complexes
AUTHOR(S): Chandra, Manish; Sahay, Abhaya Nand; Pandey, Daya Shankar; Puerta, M. Carmen; Valerga, Pedro
CORPORATE SOURCE: Department of Chemistry, Awadhesh Pratap Singh University, Rewa, M.P., 486 003, India
SOURCE: Journal of Organometallic Chemistry (2002), 648(1-2), 39-48
CODEN: JORCAI; ISSN: 0022-328X
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 137:118494
AB Reactions of the poly-pyridyl bridging ligand 2,4,6-tris(2-pyridyl)-1,3,5-triazine; 2,3-bis(2-pyridyl)pyrazine and 3,6-bis(2-pyridyl)-1,2,4,5-tetrazine (referred hereafter as tptz,

bppz and bptz, resp.) with [RuH(CO)Cl(PPh3)3] in methanol, gave highly stable cationic complexes [RuH(CO)(PPh3)2(L)]+. Further, mononuclear [RuH(CO)(PPh3)2(bppz)]PF6 reacted with K2PtCl4, [PdCl2(benzonitrile)2], [{Ru(η6-C10H14)(μ-Cl)Cl}2], [{Ru(η6-C6Me6)(μ-Cl)Cl}2], [RuCl(η5-C5H5)(PPh3)2] and [{Rh(η5-C5Me5)(μ-Cl)Cl}2] in methanol under refluxing conditions to give bppz bridged binuclear complexes [RuH(CO)(PPh3)2(bppz)PtCl2]PF6, [RuH(CO)(PPh3)2(bppz)PdCl2]PF6, [RuH(CO)(PPh3)2(bppz)(η6-C10H14)RuCl](PF6)2, [RuH(CO)(PPh3)2(bppz)(η6-C6Me6)Cl2Ru](PF6)2, [RuH(CO)(PPh3)2(bppz)(η5-C5H5)(PPh3)Ru](PF6)2 and [RuH(CO)(PPh3)2(bppz)Rh(η5-C5Me5)Cl](PF6)2 in quant. yield. The reaction products were characterized by elemental analyses, IR, 1H-, 1H-1H-COSY, 13C-, 31P-NMR, ESMS, FAB mass spectroscopy, electronic spectra and cyclic voltammetry. The mol. structure of the representative mononuclear complex [RuH(CO)(PPh3)2(tptz)]BF4 was confirmed by x-ray crystallog. Crystal structure determination revealed η2-coordination of the ligand tptz with the metal center. Crystal data: monoclinic, space group P21/n, a 17.810(6), b 22.233(9), c 12.156(4) Å, β 90.06(3)°, Z = 4, R = 0.078.

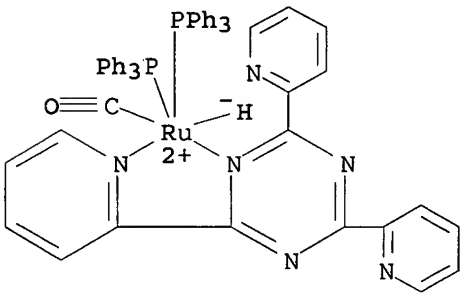
IT **442848-09-1P**
(preparation, crystal structure and electrochem. **oxidation** and reduction)

RN 442848-09-1 HCAPLUS

CN Ruthenium(1+), carbonylhydro[2-(2-pyridinyl-κN)-4,6-di-2-pyridinyl-1,3,5-triazine-κN1]bis(triphenylphosphine)-, (OC-6-15)-, tetrafluoroborate(1-) (9CI) (CA INDEX NAME)

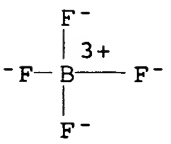
CM 1

CRN 442848-08-0
CMF C55 H43 N6 O P2 Ru
CCI CCS



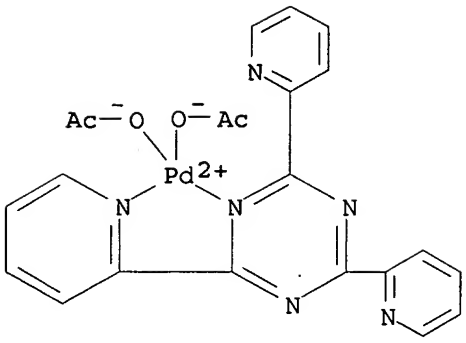

CM 2

CRN 14874-70-5
CMF B F4
CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 29, 72, 75
IT **Oxidation**, electrochemical
**Oxidation** potential
Reduction, electrochemical
Reduction potential
(of ruthenium carbonyl hydrido phosphine tris(pyridyl)triazine, bis(pyridyl)pyrazine and bis(pyridyl)tetrazine complexes)
IT 442848-12-6P 442848-17-1P 442848-29-5P
(preparation and electrochem. **oxidation** and reduction)
IT **442848-09-1P**
(preparation, crystal structure and electrochem. **oxidation** and reduction)
REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 13 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2000:168930 HCAPLUS
DOCUMENT NUMBER: 132:224425
TITLE: Production of hydrogen peroxide from oxygen and alcohols, **catalyzed** by palladium complexes
AUTHOR(S): Bortolo, R.; Bianchi, D.; D'Aloisio, R.; Querci, C.; Ricci, M.
CORPORATE SOURCE: EniChem, Centro Ricerche Novara 'Istituto G. Donegani', Novara, I-28100, Italy
SOURCE: Journal of Molecular Catalysis A: Chemical (2000), 153(1-2), 25-29
CODEN: JMCCF2; ISSN: 1381-1169
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Production of hydrogen peroxide has been achieved by the **catalytic oxidation** of primary and secondary alcs. with oxygen, in presence of a palladium **catalyst.** The **catalyst** was a complex of palladium with a bidentate nitrogen ligand and an acid cocatalyst. 2,9-Dimethyl-4,7-diphenyl-1,10-phenanthroline was selected as the most efficient ligand, and perfluorooctanoic acid gave the best results as cocatalyst. In this work the effects of nitrogen ligands, acid cocatalyst, alcs., as far as temperature and oxygen pressure are concerned, are investigated.
IT **260963-89-1**
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
RN 260963-89-1 HCAPLUS
CN Palladium, bis(acetato-κO)[2-(2-pyridinyl-κN)-4,6-di-2-pyridinyl-1,3,5-triazine-κN1]-, (SP-4-3)- (9CI) (CA INDEX NAME)



CC 49-8 (Industrial Inorganic Chemicals)
Section cross-reference(s): 45, 51, 67
ST hydrogen peroxide prodn alc **oxidn** palladium complex **catalyst**; alc **oxidn catalyst** palladium complex H2O2 prodn
IT **Oxidation**
**Oxidation catalysts**
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT Aldehydes, processes
Ketones, processes
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT Alcohols, reactions
(primary; hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT Alcohols, reactions
(secondary; hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT 64-19-7, Acetic acid, uses 76-05-1, Perfluoroacetic acid, uses 335-67-1, Perfluorooctanoic acid 3375-31-3D, Palladium diacetate, complexes 7440-05-3D, Palladium, complexes, uses 7647-01-0, Hydrogen chloride, uses 7664-38-2, Phosphoric acid, uses 7664-93-9, Sulfuric acid, uses 35679-81-3 95246-09-6 152506-86-0 152506-88-2 260963-87-9 260963-88-0 **260963-89-1**
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT 7722-84-1P, Hydrogen peroxide, preparation
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
IT 67-63-0, 2-Propanol, reactions 71-41-0, 1-Pentanol, reactions 93-54-9, 1-Phenyl-1-propanol 98-85-1, 1-Phenylethanol 100-51-6, Benzyl alcohol, reactions 104-76-7, 2-Ethylhexanol 105-13-5, 4-Methoxybenzyl alcohol 108-93-0, Cyclohexanol, reactions 111-87-5, 1-Octanol, reactions 123-96-6, 2-Octanol 698-87-3, 1-Phenyl-2-propanol 7782-44-7, Oxygen, reactions
(hydrogen peroxide production from oxygen and alcs. using palladium complex **catalysts**)
REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 14 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:794928 HCAPLUS
DOCUMENT NUMBER: 132:145749

TITLE: Metal-Assisted Unusual Hydroxylation at the Carbon Atom of the Triazine Ring in Dinuclear Ruthenium(II) and Osmium(II) Complexes Bridged by 2,4,6-Tris(2-pyridyl)-1,3,5-triazine: Synthesis, Structural Characterization, Stereochemistry, and Electrochemical Studies

AUTHOR(S): Paul, Parimal; Tyagi, Beena; Bilakhiya, Anvarhusen K.; Dastidar, Parthasarathi; Suresh, Eringathodi

CORPORATE SOURCE: Discipline of Silicates and Catalysis, Central Salt and Marine Chemicals Research Institute G. B. Marg, Bhavnagar, 364 002, India

SOURCE: Inorganic Chemistry (2000), 39(1), 14-22
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

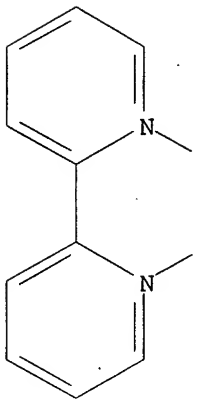
AB The reaction of cis-[M(bpy)2Cl2] (M = Ru(II), and Os(II)) with 2,4,6-tris(2-pyridyl)-1,3,5-triazine (tptz) in refluxing EtOH-H2O gave dinuclear [{M(bpy)2}2(tptz-OH)](PF6)3·nH2O (n = 1 for Ru and n = 0 for Os). In this reaction an unusual metal-induced hydroxylation at the C atom of the triazine ring of bridged tptz occurred. However, hydroxylation did not occur in the corresponding mononuclear complexes under similar reaction conditions. A comparative study revealed that sufficient electrophilicity on the C atom and free movement of the attached pyridyl ring promoted the hydroxylation reaction. The hydroxylated dinuclear complexes exist in two stereoisomeric forms, a rac form (ΔΔ/ΛΛ) and a meso form (ΔΛ/ΛΔ). Both diastereoisomers were isolated in pure form and characterized. The mol. structures of the rac form of Ru(II) complex (3-II) and meso form of the Os(II) complex (4-I) were established by single-crystal x-ray studies. Crystal data: complex 3-II, monoclinic, space group C2/c, a 24.584(7), b 14.309(4), c 41.044(13) Å, β 92.84(2)°, Z = 8, R = 0.179, wR2 = 0.479; complex 4-I, triclinic, space group P.hivin.1, a 13.444(7), b 14.576(5), c 19.641(7) Å, α 98.21(3), β 101.67(4), γ 105.80(4)°, Z = 2, R = 0.093, wR2 = 0.279. The poor data quality of 3-II did not allow anisotropic refinement of nonhydrogen atoms except Ru and P. A PLUTO drawing of this compound is given only to support the mol. structure. 1H NMR data were used to characterize the diastereoisomers. The dinuclear complexes exhibit unusual electrochem. behavior; cathodic shifts of the metal-centered **oxidns.** and ligand-based first reduction compared to mononuclear complexes were observed There is a splitting in the metal-centered **oxidation** potentials, indicating strong electronic communication between the metal centers. Comproportionation consts. (Kcom) of the mixed-valence species were calculated; the values are in the range 6.03 + 104 to 4.7 + 106. Apparently a metal-metal interaction occurred by an electron-transfer mode across the low-lying π* orbital of the bridged tptz.

IT **256635-39-9 256635-40-2 256635-41-3**
(electrochem. formation and comproportionation kinetics of)

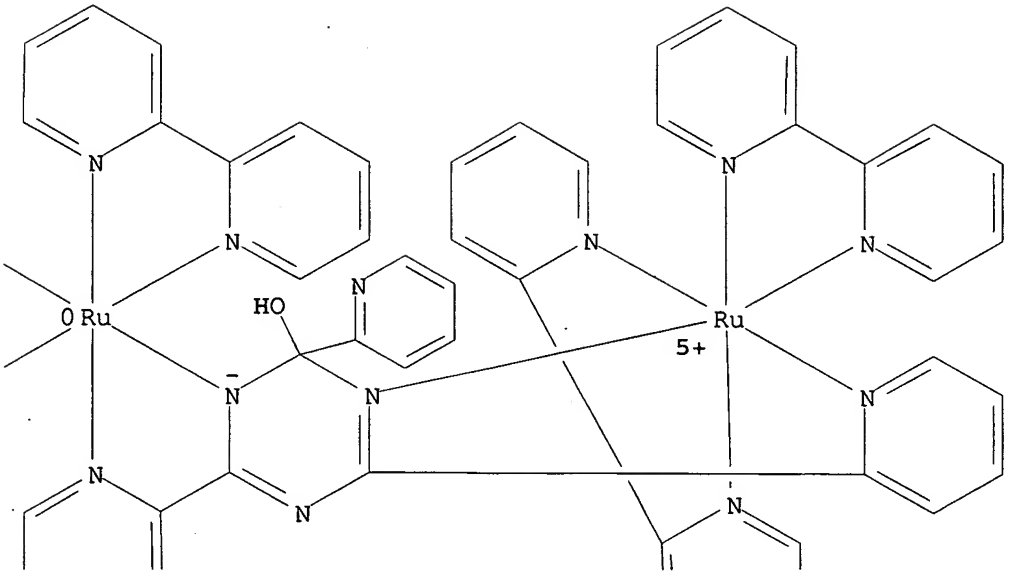
RN 256635-39-9 HCAPLUS

CN Ruthenium(4+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer (9CI) (CA INDEX NAME)

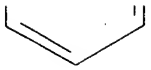
PAGE 1-A

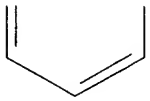


PAGE 1-B



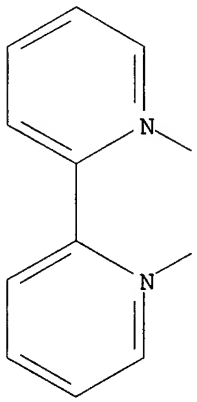
PAGE 2-B



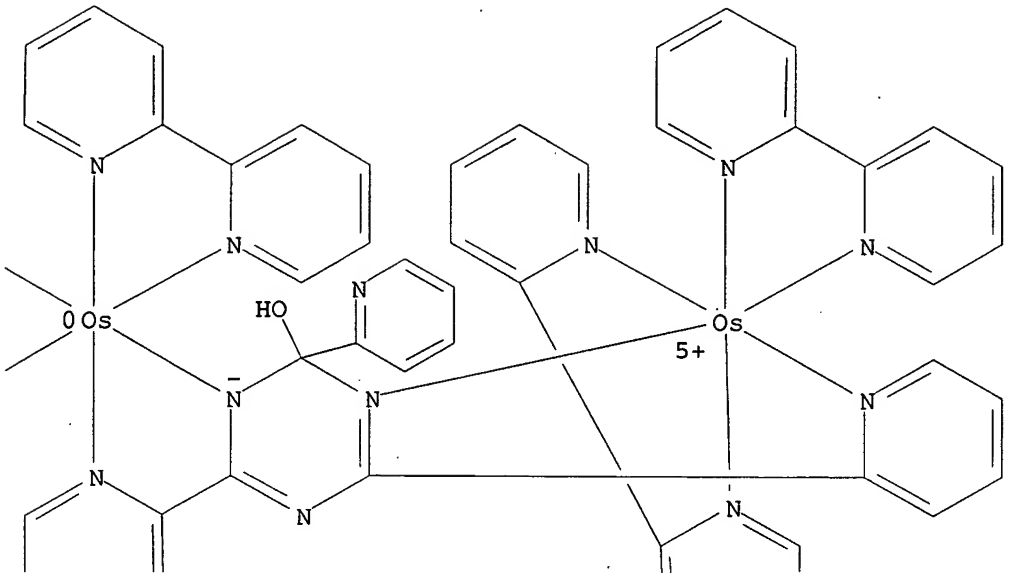


RN 256635-40-2 HCAPLUS
CN Osmium(4+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



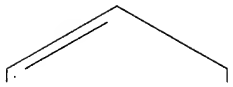
PAGE 1-B



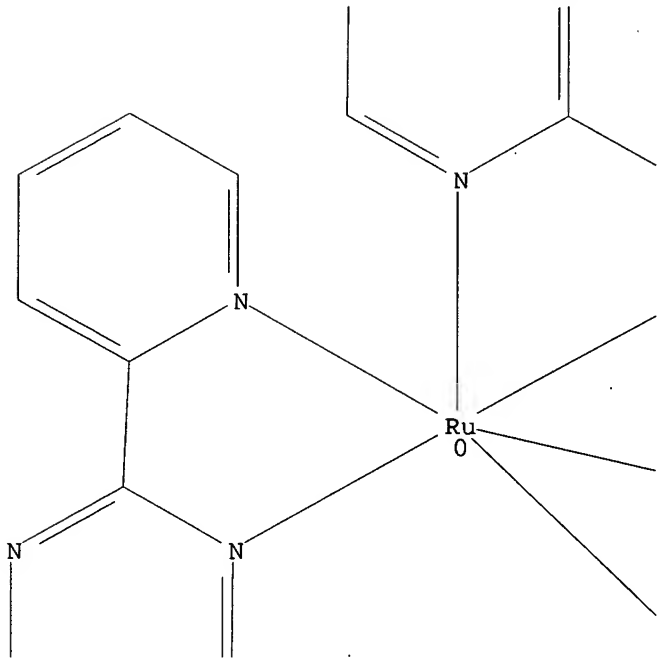

PAGE 2-B

RN 256635-41-3 HCAPLUS
CN Ruthenium(5+), bis(2,2'-bipyridine-κN1,κN1')(2,2':6',2''-terpyridine-κN1,κN1',κN1'')[μ-[2,4,6-tri(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di- (9CI) (CA INDEX NAME)

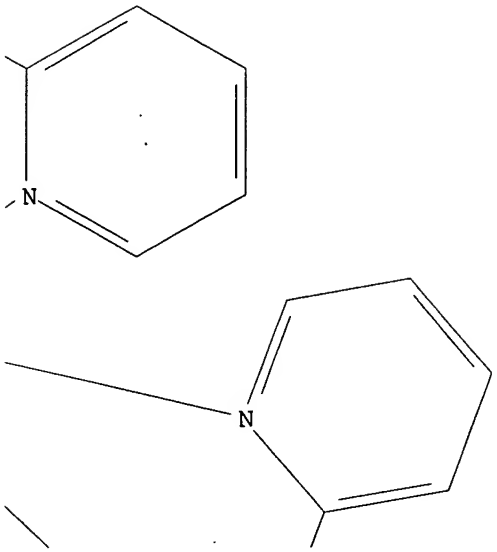
PAGE 1-A



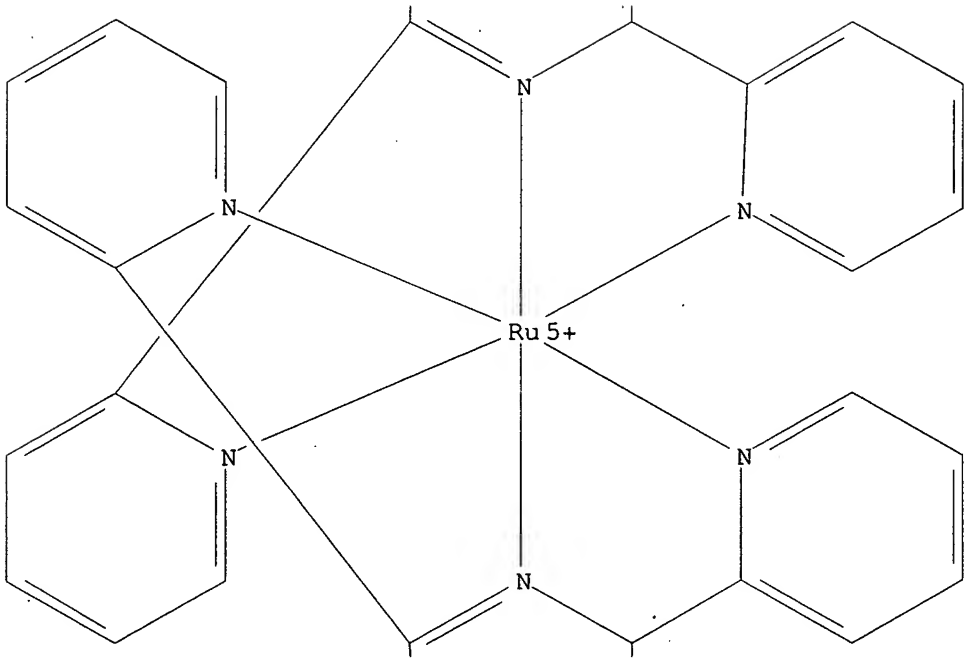
PAGE 2-A



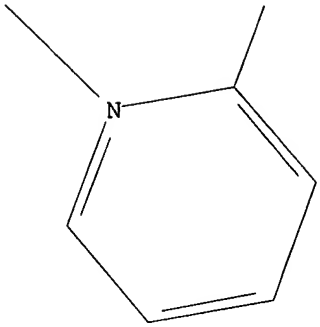
PAGE 2-B



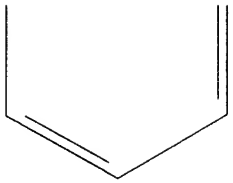

PAGE 3-A



PAGE 3-B




PAGE 4-A



IT **256931-71-2P**
(preparation and crystal structure of)
RN 256931-71-2 HCAPLUS
CN Ruthenium(3+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer, tris[hexafluorophosphate(1-)], monohydrate (9CI) (CA INDEX NAME)

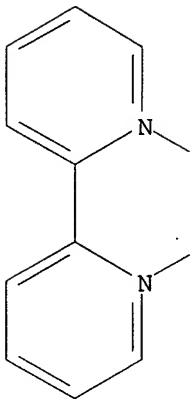
CM 1

CRN 256635-36-6
CMF C58 H45 N14 O Ru2 . 3 F6 P

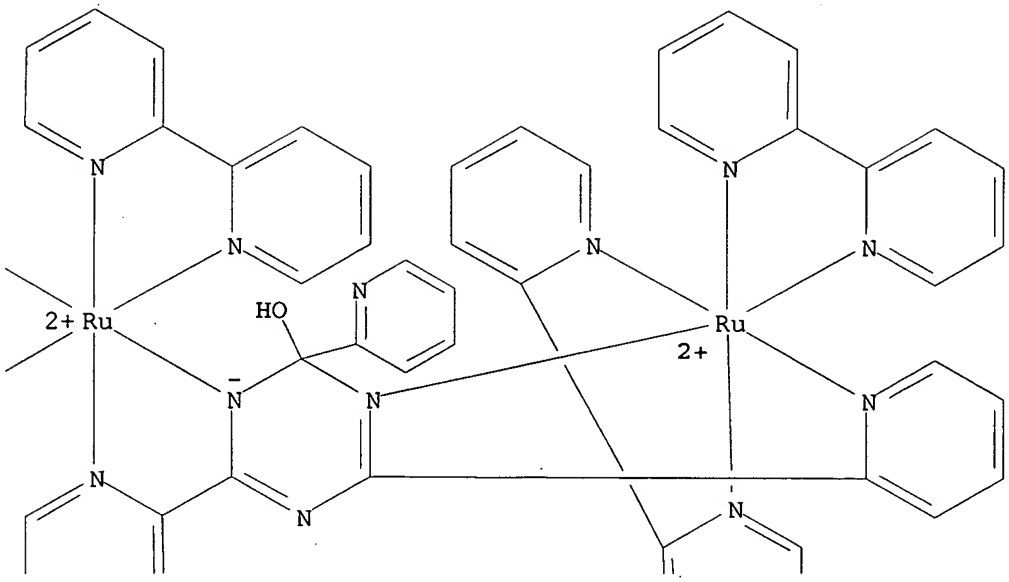
CM 2

CRN 256635-35-5
CMF C58 H45 N14 O Ru2
CCI CCS

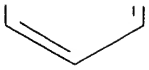
PAGE 1-A

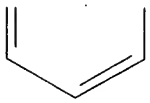


PAGE 1-B



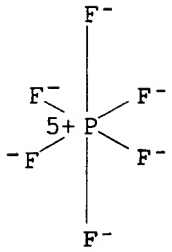
PAGE 2-B





CM 3

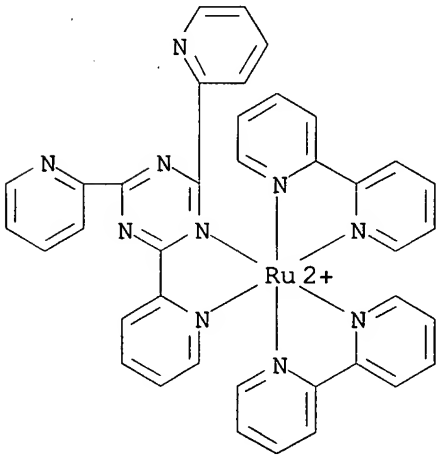
CRN 16919-18-9
CMF F6 P
CCI CCS



IT **134388-08-2P 256635-34-4P**
(preparation and **oxidation** and reduction potentials of)
RN 134388-08-2 HCAPLUS
CN Ruthenium(2+), bis(2,2'-bipyridine-κN1,κN1')[2-(2-pyridinyl-κN)-4,6-di-2-pyridinyl-1,3,5-triazine-κN1]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

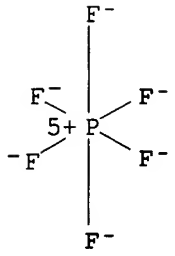
CM 1

CRN 134388-07-1
CMF C38 H28 N10 Ru
CCI CCS



CM 2

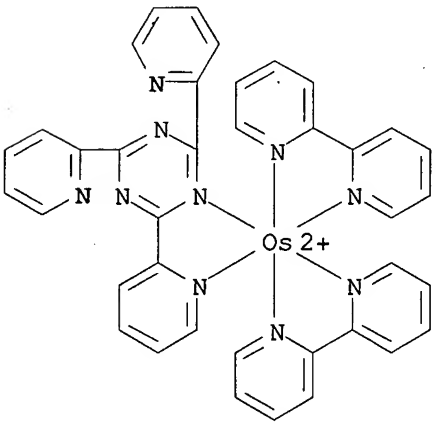
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 256635-34-4 HCAPLUS
CN Osmium(2+), bis(2,2'-bipyridine-κN1,κN1')[2-(2-pyridinyl-κN)-4,6-di-2-pyridinyl-1,3,5-triazine-κN1]-, (OC-6-33)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

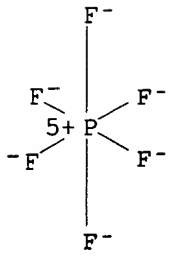
CM 1

CRN 256635-33-3
CMF C38 H28 N10 Os
CCI CCS



CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

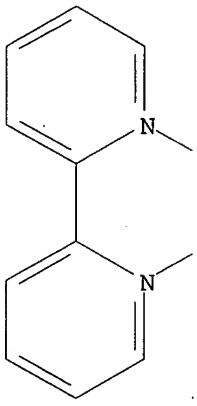


IT **256635-38-8P**
(preparation, crystal structure, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)
RN 256635-38-8 HCAPLUS
CN Osmium(3+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer, tris[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

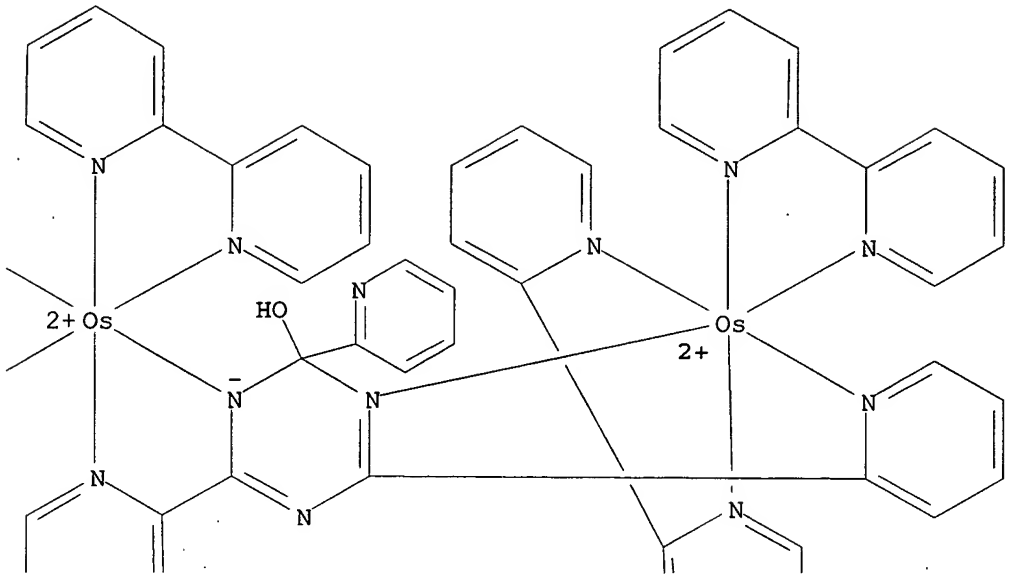
CM 1

CRN 256635-37-7
CMF C58 H45 N14 O Os2
CCI CCS

PAGE 1-A



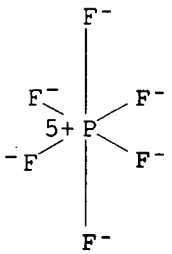
PAGE 1-B



PAGE 2-B

CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



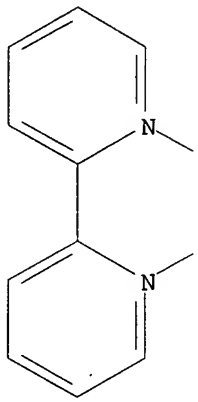
IT **256934-37-9P**
(preparation, mol. structure, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)

RN 256934-37-9 HCAPLUS
CN Ruthenium(3+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer, tris[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 256934-36-8
CMF C58 H45 N14 O Ru2
CCI CCS

PAGE 1-A



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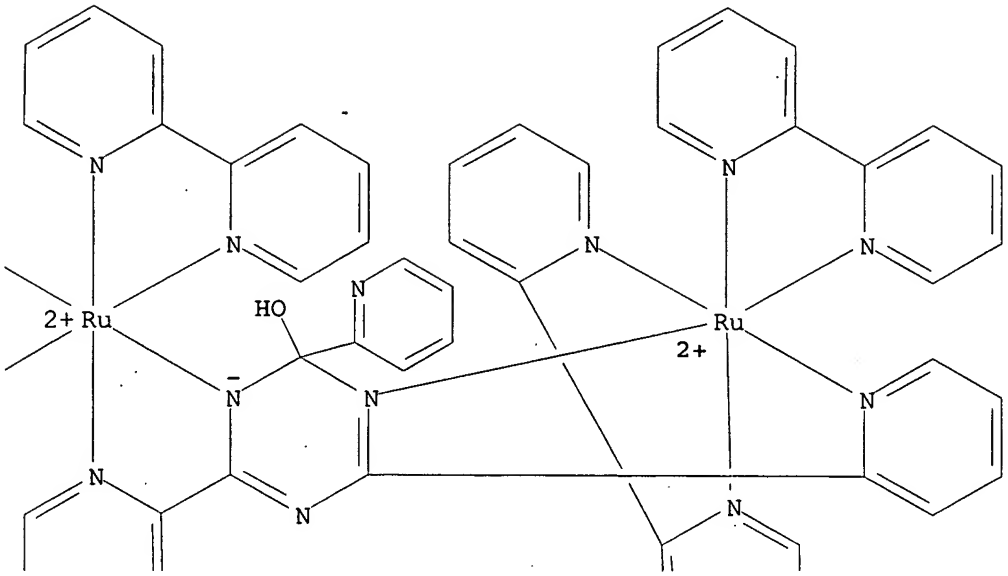
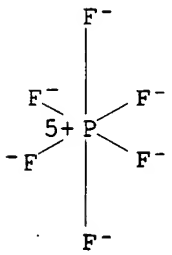


PAGE 2-B

CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



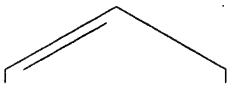
IT **134388-10-6P**
(preparation, **oxidation** and reduction potentials, and electrochem. **oxidation**)
RN 134388-10-6 HCAPLUS

CN Ruthenium(4+), bis(2,2'-bipyridine-κN1,κN1')(2,2':6',2''-terpyridine-κN1,κN1',κN1'')[μ-[2,4,6-tri(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di-, tetrakis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 134388-09-3
CMF C53 H39 N13 Ru2
CCI CCS

PAGE 1-A



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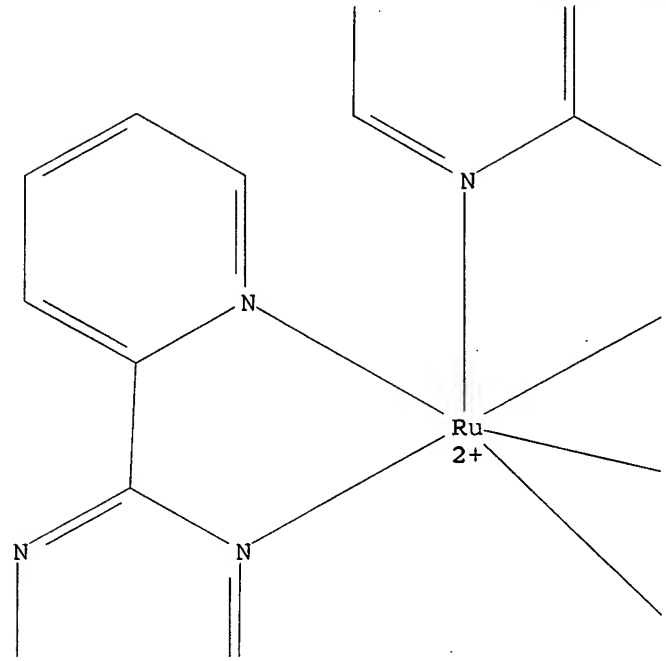
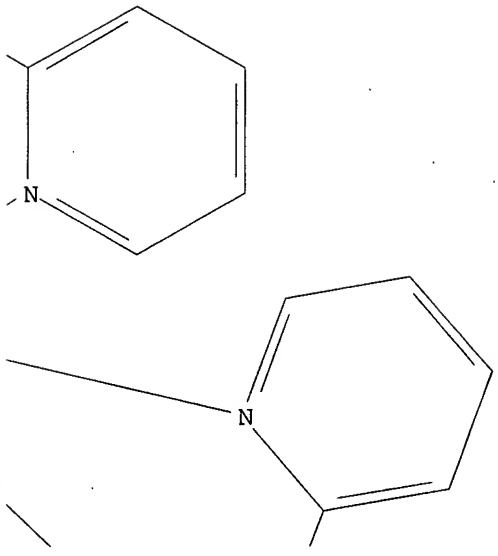



PAGE 2-B



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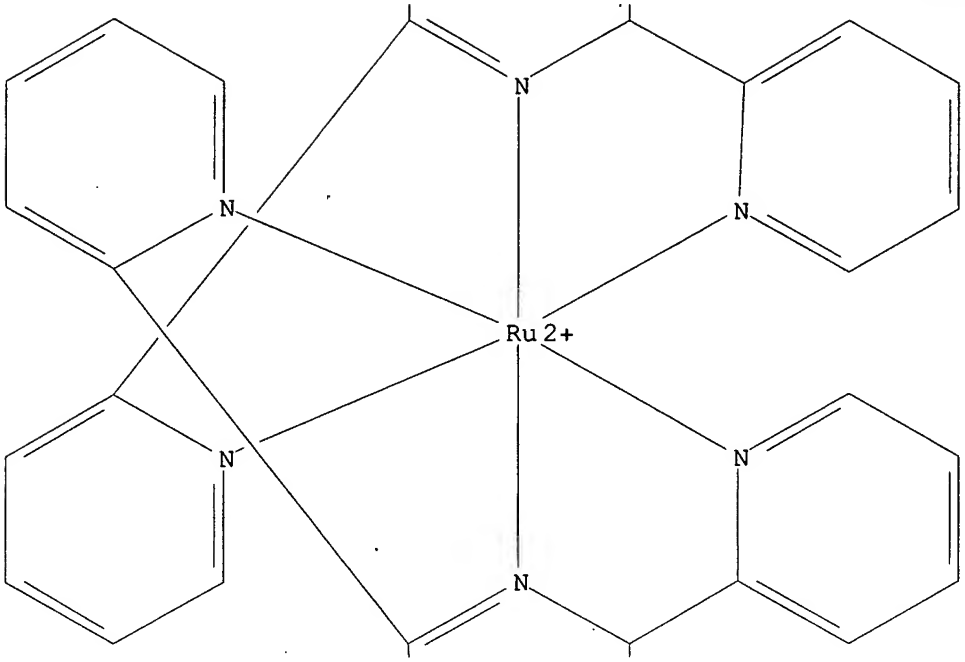


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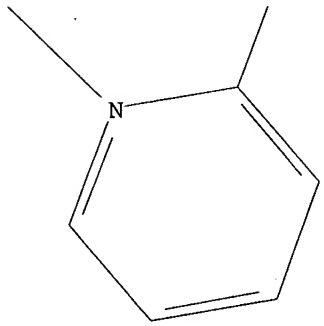


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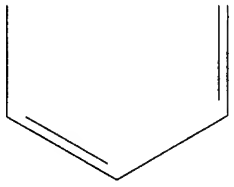
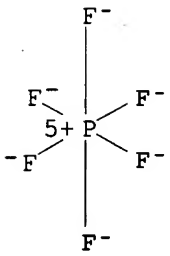


CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

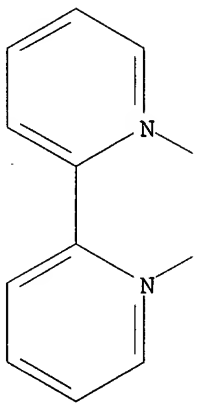


IT **256635-36-6P 256933-98-9P**
(preparation, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)
RN 256635-36-6 HCAPLUS
CN Ruthenium(3+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer, tris[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 256635-35-5
CMF C58 H45 N14 O Ru2
CCI CCS

PAGE 1-A



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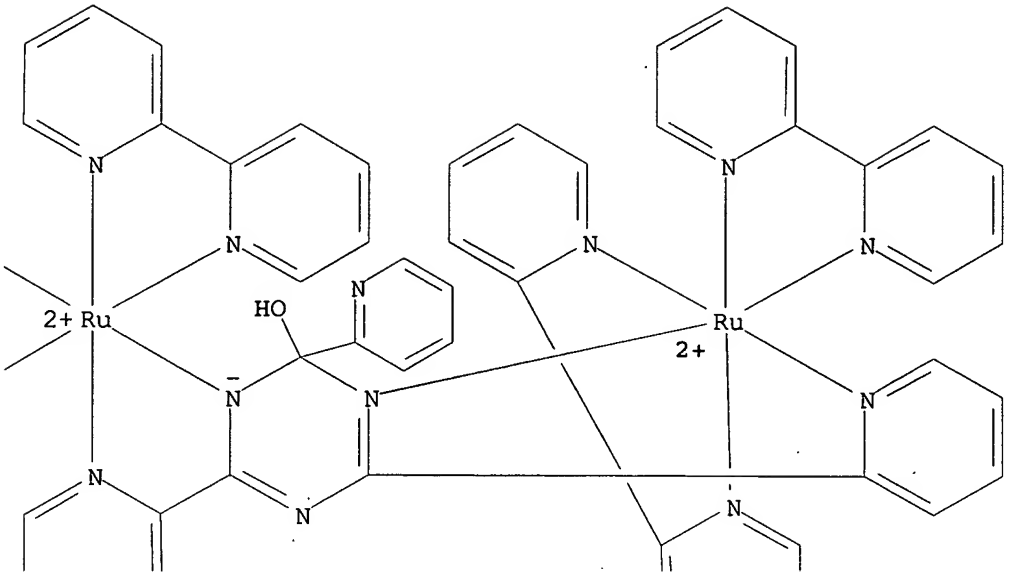


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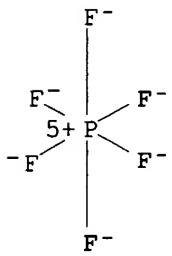
CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

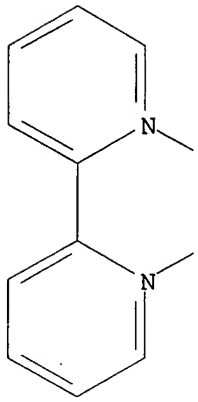



RN 256933-98-9 HCAPLUS
CN Osmium(3+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[1,2-dihydro-2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazin-2-olato-κN1:κN3]]di-, stereoisomer, tris[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

CM 1

CRN 256933-97-8
CMF C58 H45 N14 O Os2
CCI CCS

PAGE 1-A



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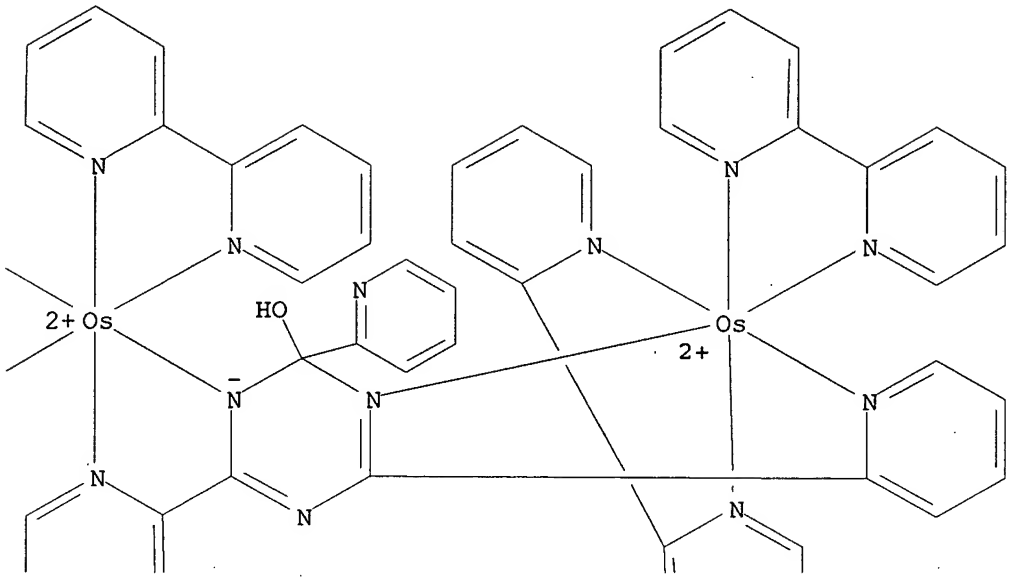
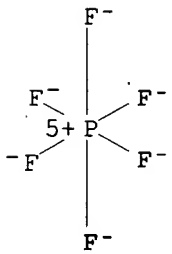


PAGE 2-B

CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS

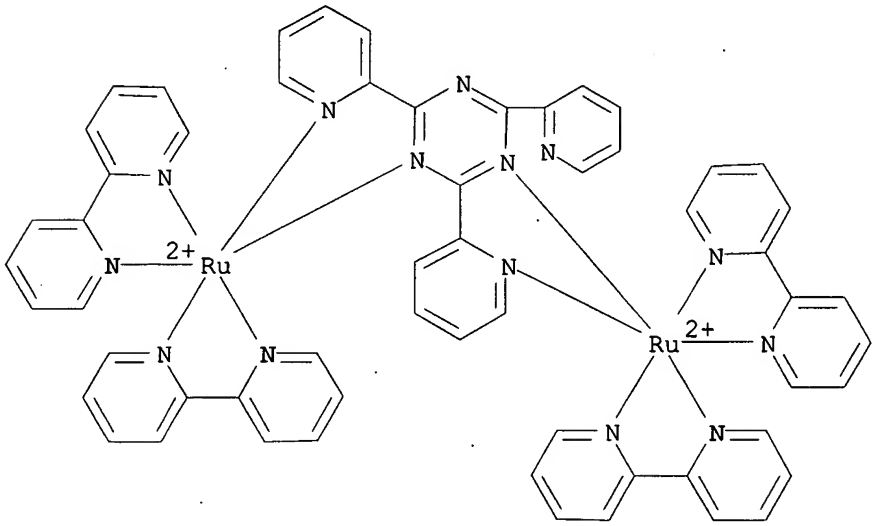


IT **175918-24-8**
(reformulation as dinuclear ruthenium complex containing hydroxylated tris(pyridyl)triazine ligand)
RN 175918-24-8 HCAPLUS

CN Ruthenium(4+), tetrakis(2,2'-bipyridine-κN1,κN1')[μ-[2,4-di(2-pyridinyl-κN)-6-(2-pyridinyl)-1,3,5-triazine-κN1:κN3]]di-, tetrakis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

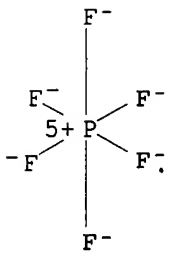
CM 1

CRN 175918-23-7
CMF C58 H44 N14 Ru2
CCI CCS



CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 73, 75

IT **Oxidation** potential
(of ruthenium and osmium dinuclear complexes of trispyridyltriazine ligand C-hydroxylated on triazine ring, and mononuclear analogs)

IT **256635-39-9 256635-40-2 256635-41-3**
(electrochem. formation and comproportionation kinetics of)

IT **256931-71-2P**
(preparation and crystal structure of)
IT **134388-08-2P 256635-34-4P**
(preparation and **oxidation** and reduction potentials of)
IT **256635-38-8P**
(preparation, crystal structure, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)
IT **256934-37-9P**
(preparation, mol. structure, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)
IT **134388-10-6P**
(preparation, **oxidation** and reduction potentials, and electrochem. **oxidation**)
IT **256635-36-6P 256933-98-9P**
(preparation, **oxidation** and reduction potentials, electrochem. **oxidation**, UV-visible and proton NMR spectra, and mechanistic aspects of ligand hydroxylation)
IT **175918-24-8**
(reformulation as dinuclear ruthenium complex containing hydroxylated tris(pyridyl)triazine ligand)
REFERENCE COUNT: 62 THERE ARE 62 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

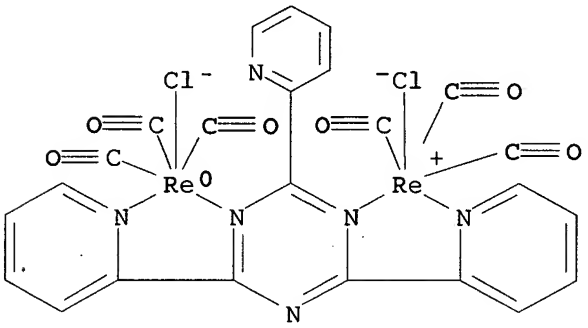
L16 ANSWER 15 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:310425 HCAPLUS
DOCUMENT NUMBER: 131:38774
TITLE: Mononuclear and binuclear rhenium(I) carbonyl complexes of 2,4,6-tris(2-pyridyl)-1,3,5-triazine (TPT), [{ReCl(CO)3}n(TPT)] (n = 1, 2), and the formation of mixed-metal compounds with Re-TPT-M (M = MnII, CoII, CuII) bonds
AUTHOR(S): Granifo, Juan
CORPORATE SOURCE: Departamento de Ciencias Quinicas, Facultad de Ingenieria y Administracion, Universidad de La Frontera, Temuco, 54-D, Chile
SOURCE: Polyhedron (1999), 18(7), 1061-1066
CODEN: PLYHDE; ISSN: 0277-5387
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The novel mononuclear complex [ReCl(CO)3(TPT)] was isolated where the triazine ligand is acting in a bidentate chelate mode. The metalloligand properties of this Re(I) complex were demonstrated when it reacts bidentately either with the {ReCl(CO)3} fragment or with the [M(hfac)2] (M = Mn, Co, Cu; hfac = hexafluoroacetylacetonate ion) complexes, producing the homobinuclear [{ReCl(CO)3}2(TPT)] and the heterobimetallic [(CO)3ClRe(TPT)M(hfac)2] substances, resp. In MeOH solution the binuclear Re-TPT-Re complex forms the [{ReCl(CO)3}2(TPT)]·MeOH complex, where a methoxide group seems to be interacting with the acidic triazine ring and the N atom of the uncoordinated pyridyl group is protonated. In general, the studies in solution of the dirhenium Re-TPT-Re complex show evidence of its interaction with the solvent mols. apparently in an acid-base fashion. However, the mixed-metal Re-TPT-M derivs. show dissociation reactions in solution generating the parent

mononuclear [ReCl(CO)3(TPT)] compound and the [M(hfac)2] complexes. The systems under study were characterized through IR, 1H NMR and electronic spectroscopy, electrochem. and magnetic moment measurements.

IT **226896-11-3 226896-12-4 226896-13-5 226896-14-6 226896-15-7**
(elec. potential of couple containing)

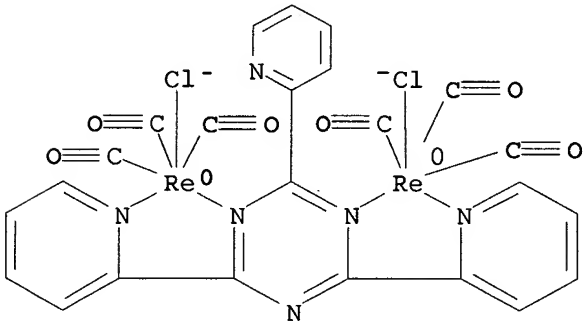
RN 226896-11-3 HCAPLUS

CN Rhenate(1-), hexacarbonyldichloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di-, stereoisomer (9CI) (CA INDEX NAME)



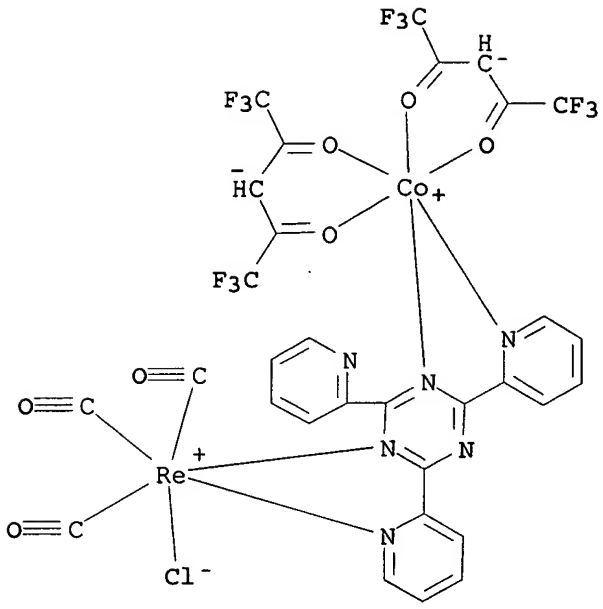
RN 226896-12-4 HCAPLUS

CN Rhenate(2-), hexacarbonyldichloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di-, stereoisomer (9CI) (CA INDEX NAME)

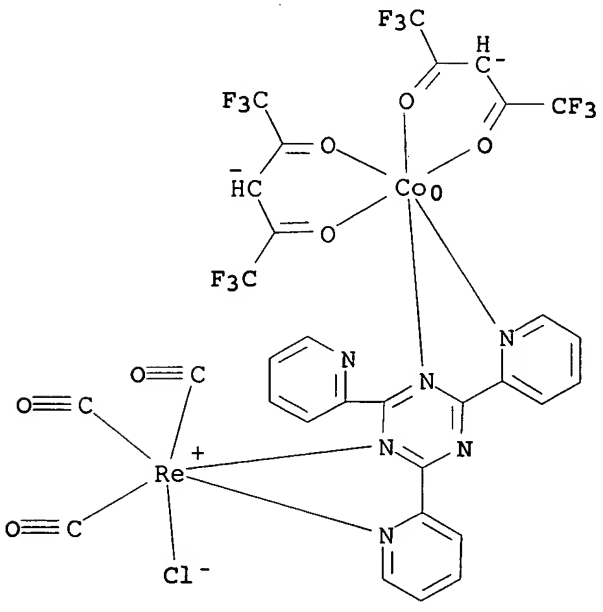


RN 226896-13-5 HCAPLUS

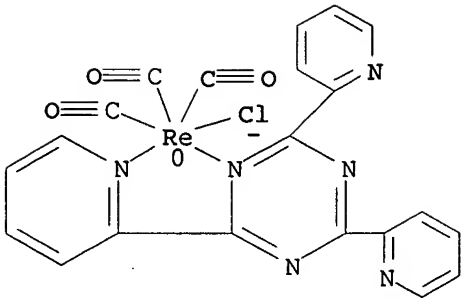
CN Rhenate(1-), [bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')cobaltate]tricarbonylchloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]-, stereoisomer (9CI) (CA INDEX NAME)



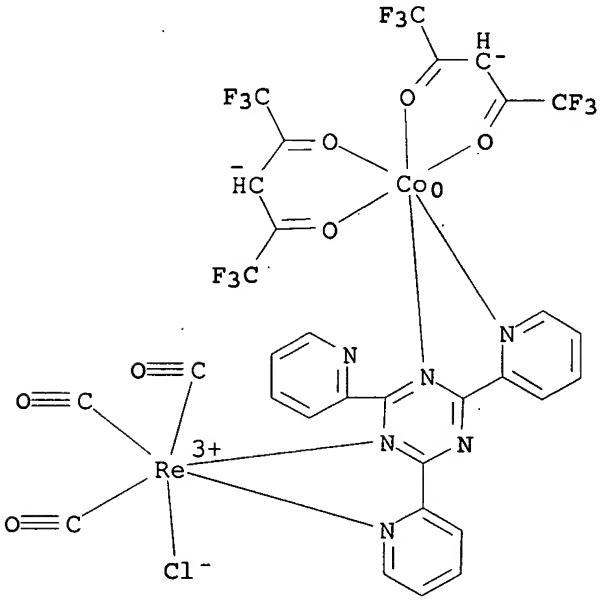
RN 226896-14-6 HCAPLUS
CN Rhenate(2-), [bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')cobaltate]tricarbonylchloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]-, stereoisomer (9CI) (CA INDEX NAME)



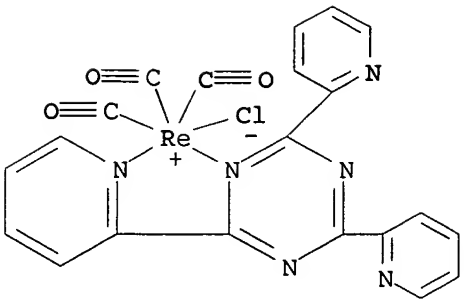
RN 226896-15-7 HCAPLUS
CN Rhenate(1-), tricarbonylchloro[6-(2-pyridinyl-κN)-2,4-di-2-pyridinyl-1,3,5-triazine-κN1]-, (OC-6-44)- (9CI) (CA INDEX NAME)



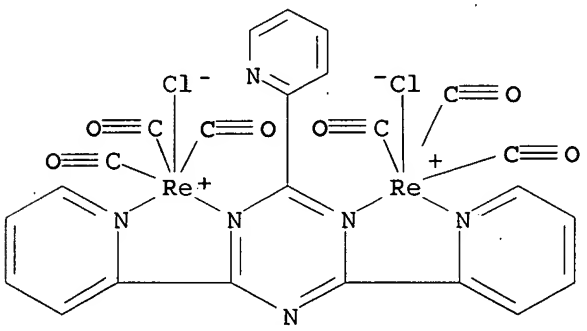
IT **226896-08-8P**
(preparation and cyclic voltammetry)
RN 226896-08-8 HCAPLUS
CN Rhenium, [bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')cobalt]tricarbonylchloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]-, stereoisomer (9CI) (CA INDEX NAME)



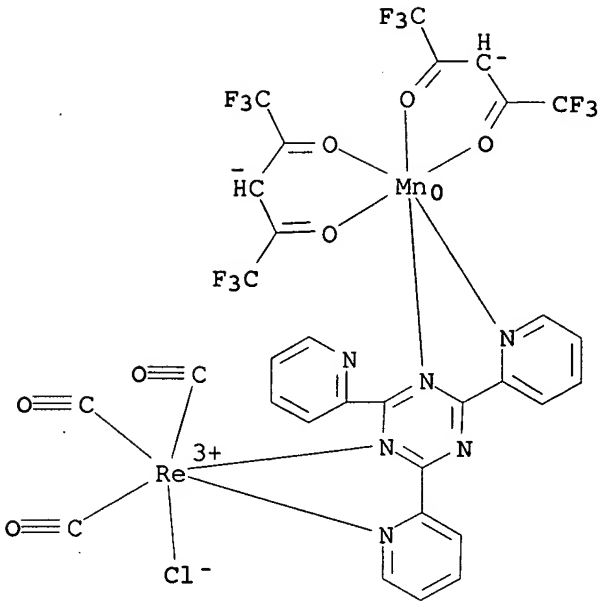
IT **226896-03-3P**
(preparation and cyclic voltammetry and solvatochromism and reaction with rhenium carbonyl acetonitrile complex and transition metal hexafluoroacetylacetonate complexes)
RN 226896-03-3 HCAPLUS
CN Rhenium, tricarbonylchloro[6-(2-pyridinyl-κN)-2,4-di-2-pyridinyl-1,3,5-triazine-κN1]-, (OC-6-44)- (9CI) (CA INDEX NAME)



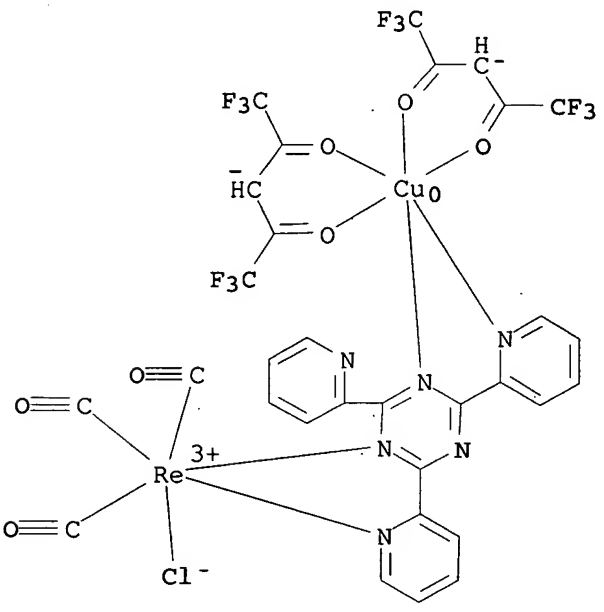
IT **226896-04-4P**
(preparation and solvatochromism and cyclic voltammetry)
RN 226896-04-4 HCAPLUS
CN Rhenium, hexacarbonyldichloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di-, stereoisomer (9CI) (CA INDEX NAME)



IT **226896-06-6P 226896-10-2P 226909-23-5P**
(preparation of)
RN 226896-06-6 HCAPLUS
CN Rhenium, [bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')manganese]tricarbonylchloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]-, stereoisomer (9CI) (CA INDEX NAME)



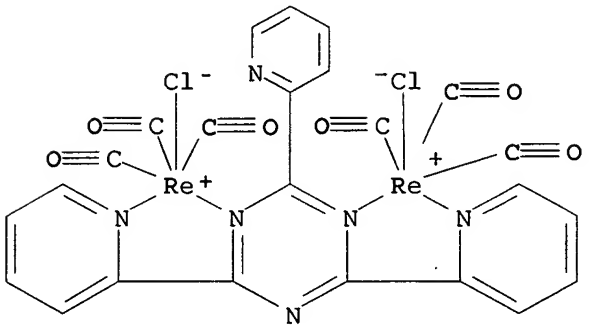
RN 226896-10-2 HCAPLUS
CN Rhenium, [bis(1,1,1,5,5,5-hexafluoro-2,4-pentanedionato-κO,κO')copper]tricarbonylchloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]-, stereoisomer (9CI) (CA INDEX NAME)



RN 226909-23-5 HCAPLUS
CN Rhenium, hexacarbonyldichloro[μ-[2-(2-pyridinyl)-4,6-di(2-pyridinyl-κN)-1,3,5-triazine-κN1:κN3]]di-, stereoisomer, compd. with methanol (1:1) (9CI) (CA INDEX NAME)

CM 1

CRN 226896-04-4
CMF C24 H12 Cl2 N6 O6 Re2
CCI CCS



CM 2

CRN 67-56-1
CMF C H4 O

$H_3C-OH$

CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 73
IT **Oxidation** potential
Reduction potential
(of rhenium carbonyl tris(pyridyl)triazine complexes with/without transition metal hexafluoroacetylacetonate)
IT **226896-11-3 226896-12-4 226896-13-5 226896-14-6 226896-15-7**
(elec. potential of couple containing)
IT **226896-08-8P**
(preparation and cyclic voltammetry)
IT **226896-03-3P**
(preparation and cyclic voltammetry and solvatochromism and reaction with rhenium carbonyl acetonitrile complex and transition metal hexafluoroacetylacetonate complexes)
IT **226896-04-4P**
(preparation and solvatochromism and cyclic voltammetry)
IT **226896-06-6P 226896-10-2P 226909-23-5P**
(preparation of)
REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 16 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1998:636313 HCAPLUS
DOCUMENT NUMBER: 129:350143
TITLE: Synthesis and Characterization of Rhodium Complexes Containing 2,4,6-Tris(2-pyridyl)-

1,3,5-triazine and Its Metal-Promoted Hydrolytic Products: Potential Uses of the New Complexes in Electrocatalytic Reduction of Carbon Dioxide

AUTHOR(S): Paul, Parimal; Tyagi, Beena; Bilakhiya, Anvarhusen K.; Bhadbhade, Mohan M.; Suresh, Eringathodi; Ramachandraiah, G.

CORPORATE SOURCE: Disciplines of Silicates and Catalysis Sophisticated Analytical Instruments Laboratory and Discipline of Reactive Polymers, Central Salt and Marine Chemicals Research Institute, Bhavnagar, 364 002, India

SOURCE: Inorganic Chemistry (1998), 37(22), 5733-5742
CODEN: INOCAJ; ISSN: 0020-1669

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The reaction of 2,4,6-tris(2-pyridyl)-1,3,5-triazine (tptz) with $RhCl_3 \cdot 3H_2O$ was studied under different exptl. conditions. This reaction in EtOH gave $[Rh(tptz)Cl_3] \cdot 2H_2O$ (1), whereas the bis-chelate complex $[Rh(tptz)_2][ClO_4]_3 \cdot 2H_2O$ (2) was obtained in a two-step reaction in acetone in which the chlorides from $RhCl_3$ were removed in using $AgClO_4$, followed by the addition of tptz. 1 And 2, when refluxed in EtOH-$H_2O$ (1:1), resulted in metal-promoted hydrolysis of tptz to the bis(2-pyridylcarbonyl)amide anion (bpca) and 2-picolinamide (pa), yielding $[Rh(bpca)(pa)Cl][PF_6] \cdot H_2O$ (3) and $[Rh(bpca)_2][ClO_4]$ (6), resp. A mixed-ligand complex, $[Rh(bpca)(tpy)][PF_6]_2 \cdot MeCN$ (4), was obtained by the reaction of either 1 with terpyridine (tpy) or $[Rh(tpy)Cl_3]$ (5) with tptz in EtOH-$H_2O$ medium. Crystal data: 1, monoclinic, space group P21/c, a 11.642(2), b 7.302(2), c 24.332(3) Å, β 96.420(10)°, Z = 4, R = 0.040, 4, triclinic, space group P.hivin.1, a 9.581(1), b 12.933(2), c 14.493(2) Å, α 82.480(10), β 71.810(10), γ 75.100(10)°, Z = 2, R = 0.030. The two $H_2O$ mols. in 1 make short contacts with the C atoms adjacent to the metal-bound N atom of the triazine ring which provides insight about the intermediate of the hydrolysis. X-ray and NMR data suggest that the electron-withdrawing effect of the metal ion is the major responsible factor for the hydrolysis of tptz. Cyclic voltammograms of the complexes exhibit a metal-based 2e reduction (Rh(III) → Rh(I)) at the potential range -0.42 to -0.98 V vs. SCE, followed by ligand-based redox couple(s). These novel complexes show effective **catalytic** properties for the electrocatalytic reduction of $CO_2$ in the potential range -1.26 to -1.44 V.

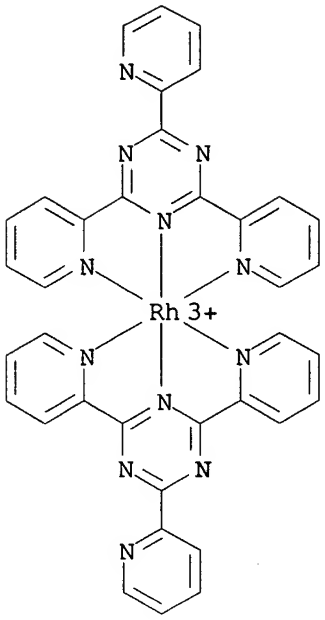
IT **215370-38-0P**
(preparation, NMR spectra, metal-promoted ligand hydrolysis, cyclic voltammetry and **catalyst** for carbon dioxide electrochem. reduction)

RN 215370-38-0 HCAPLUS

CN Rhodium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)-, triperchlorate (9CI) (CA INDEX NAME)

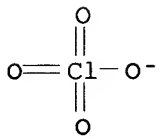
CM 1

CRN 215370-37-9
CMF C36 H24 N12 Rh
CCI CCS

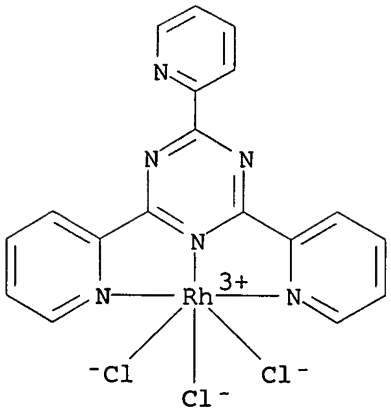



CM 2

CRN 14797-73-0
CMF Cl O4




IT **215370-36-8P**
(preparation, crystal structure, NMR spectra, metal-promoted ligand hydrolysis, cyclic voltammetry and **catalyst** for carbon dioxide reduction)
RN 215370-36-8 HCAPLUS
CN Rhodium, trichloro[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, dihydrate, (OC-6-21)- (9CI) (CA INDEX NAME)



●2 $H_2O$

CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75

ST crystal structure rhodium pyridyltriazine pyridylcarbonylamidato terpyridine; rhodium pyridyltriazine pyridylcarbonylamidato terpyridine picolinamide prepn; electrochem redn **catalyst** rhodium pyridyltriazine pyridylcarbonylamidato; electron withdrawing effect rhodium pyridyltriazine hydrolysis

IT Reduction **catalysts**
(electrochem.; rhodium complexes with 2,4,6-tris(2-pyridyl)-1,3,5-triazine, bis(2-pyridylcarbonyl)amidato and terpyridine for electrochem. reduction of carbon dioxide)

IT 124-38-9, Carbon dioxide, reactions
(electrochem. reduction **catalyzed** by rhodium complexes with 2,4,6-tris(2-pyridyl)-1,3,5-triazine, bis(2-pyridylcarbonyl)amidato and terpyridine)

IT 71-47-6P, preparation
(preparation from electrochem. reduction of carbon dioxide **catalyzed** by rhodium complexes with 2,4,6-tris(2-pyridyl)-1,3,5-triazine, bis(2-pyridylcarbonyl)amidato and terpyridine)

IT **215370-38-0P**
(preparation, NMR spectra, metal-promoted ligand hydrolysis, cyclic voltammetry and **catalyst** for carbon dioxide electrochem. reduction)

IT 215370-43-7P
(preparation, crystal structure, NMR spectra, cyclic voltammetry and **catalyst** for carbon dioxide electrochem. reduction)

IT **215370-36-8P**
(preparation, crystal structure, NMR spectra, metal-promoted ligand hydrolysis, cyclic voltammetry and **catalyst** for carbon dioxide reduction)

IT 215370-40-4P
(preparation, cyclic voltammetry and **catalyst** for carbon dioxide electrochem. reduction)

IT 35978-56-4P
(preparation, metal-promoted ligand hydrolysis, cyclic voltammetry and **catalyst** for carbon dioxide electrochem. reduction)

REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE

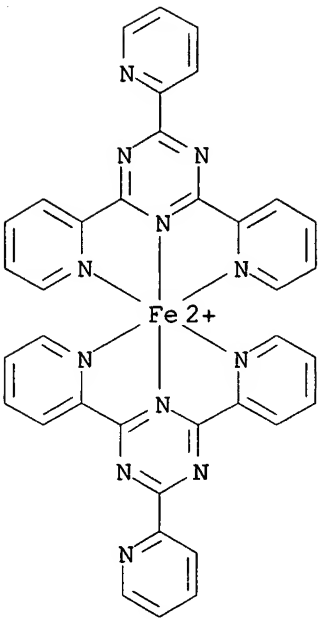
FOR THIS RECORD. ALL CITATIONS AVAILABLE
IN THE RE FORMAT

L16 ANSWER 17 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:735329 HCAPLUS
DOCUMENT NUMBER: 126:79984
TITLE: High-sensitivity microdetermination of sub-micromolar concentrations of levodopa, carbidopa and α-methyldopa using a coupled redox-complexation reaction
AUTHOR(S): Issopoulos, Prodromos B.; Salta, Sophia E.
CORPORATE SOURCE: Lab. Inorganic Pharmaceutical Analytical Chem., Dep. Chem., Univ. Ioannina, Ioannina, GR-451 10, Greece
SOURCE: Farmaco (1996), 51(10), 673-678
CODEN: FRMCE8
PUBLISHER: Societa Chimica Italiana
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A high-sensitive and simultaneously accurate, simple and rapid spectrophotometric method for the determination of sub-micromolar concns. of levodopa (I), carbidopa (II) and α-Methyldopa (III) in the range of 0.13-3.55 I, 0.10-3.27 II and 0.10-2.94 μmol/L III was based on a coupled redox-complexation reaction in which the first step was the **oxidation** of the I, II, and III by Fe (III) and the second step included the complexation of the Fe (II), resulting from the preceding redox reaction, with 2,4,6-tris(2-pyridyl)-1,3,5-triazine (TPTZ) and the formation of a stable deep-blue colored bis-chelate complex [Fe(II)-(TPTZ)2]2+ in a moderate acidic medium (pH 4.60 ± 0.05), which exhibited an absorption maximum at λmax = 595 nm. The apparent molar absorptivities, and the Sandell's sensitivities -both calculated on anhydrous drugs examined- were 2.60 + 105 mol-1 cm-1 and 0.76 ng/cm2 for I; 1.77 + 105 mol-1 cm-1 and 1.28 ng/cm2 for II and 2.50 + 105 mol-1 cm-1 and 0.84 ng/cm2 for III. Beer's law was obeyed in the concentration range 25-700 ppb for each drug. The regression line equation for each medicine was calculated with correlation coefficient of 0.9999, 1.0000 and 1.0000 for I, II, and III, resp. The results obtained from the determination of the drugs studied by using both the described procedure and the USP XXIII official methods were statistically compared by means of the Student's t-test and by the variance ratio F-test and no significant difference was observed

IT **22452-38-6**
(spectrophotometric microdetn. of levodopa and carbidopa and methyldopa based on coupled redox-complexation reaction)

RN 22452-38-6 HCAPLUS
CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



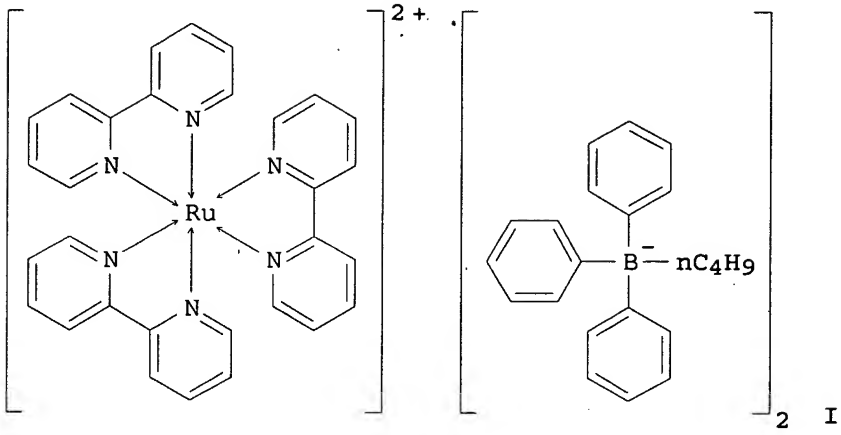

CC 64-2 (Pharmaceutical Analysis)
Section cross-reference(s): 1
IT **22452-38-6**
(spectrophotometric microdetn. of levodopa and carbidopa and methyldopa based on coupled redox-complexation reaction)
REFERENCE COUNT: 36 THERE ARE 36 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L16 ANSWER 18 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:646487 HCAPLUS
DOCUMENT NUMBER: 125:276892
TITLE: Photoinitiator composition containing boron-based coordination compounds and halomethyl triazines, polymerizable composition, and method
INVENTOR(S): Tanaka, Yasuhiro; Toba, Yasumasa; Yasuike, Madoka
PATENT ASSIGNEE(S): Toyo Ink Mfg Co, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 16 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

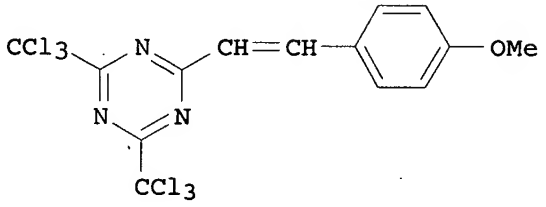
| PATENT NO. | KIND | DATE | APPLICATION NO. | DATE |
|---|---|---|---|---|
| JP 08217812 | A2 | 19960827 | JP 1995-29263 | 1995 0217 |

PRIORITY APPLN. INFO.: JP 1995-29263 1995 0217

OTHER SOURCE(S): MARPAT 125:276892
GI




I




II

AB The title photoinitiators consist of a chemical compound formed from a transition metal coordination complex cation and an organic boron anion, and a triazine compound which possesses trihalomethyl groups and a chromophore group. Pentaerythritol triacrylate was polymerized using I and II as **catalysts.**

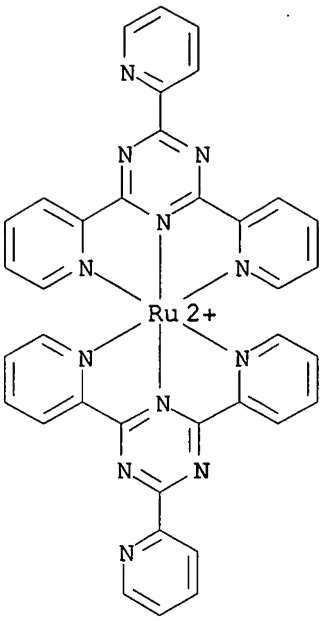
IT **182897-22-9**
(photoinitiator composition containing boron-based coordination compds. and halomethyl triazines, polymerizable composition, and method)

RN 182897-22-9 HCAPLUS

CN Ruthenium(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)-, bis[(T-4)-butyltriphenylborate(1-)] (9CI) (CA INDEX NAME)

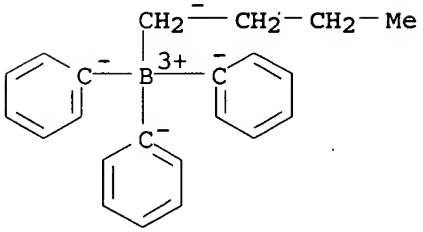
CM 1

CRN 61037-16-9
CMF C36 H24 N12 Ru
CCI CCS



CM 2

CRN 47252-39-1
CMF C22 H24 B
CCI CCS



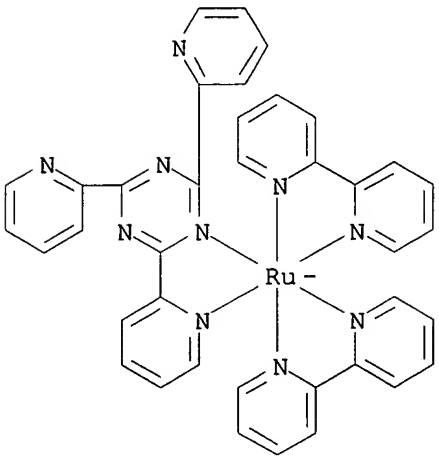
IC ICM C08F002-50
ICS C08G059-40; C08G059-68; C09D004-00
CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 67
ST boron transition metal coordination compd **catalyst**; halomethyl triazine **catalyst** photochem polymn
IT Polymerization **catalysts**
(photochem., photoinitiator composition containing boron-based coordination compds. and halomethyl triazines, polymerizable composition, and method)
IT 24481-45-6 24481-46-7 42573-57-9 42880-04-6 42880-09-1
69432-40-2 69432-50-4 97802-67-0 97802-70-5 97802-84-1
173856-10-5 173856-11-6 173856-12-7 182575-26-4
182575-27-5 182575-28-6 182575-29-7 182575-30-0
182575-31-1 182575-32-2 182575-33-3 182575-34-4
182575-35-5 182575-36-6 **182897-22-9**

(photoinitiator composition containing boron-based coordination compds. and halomethyl triazines, polymerizable composition, and method)

L16 ANSWER 19 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1995:584530 HCAPLUS
DOCUMENT NUMBER: 123:43007
TITLE: An electrochemical and spectroelectrochemical investigation of bis(2,2'-bipyridine)(2,4,6-tris(2-pyridyl)triazine)ruthenium(II): a potential building block for supramolecular systems
AUTHOR(S): Berger, Robert M.; Holcombe, Joel R.
CORPORATE SOURCE: Department of Chemistry, Indiana University-Purdue University Fort Wayne, Fort Wayne, IN, 46805, USA
SOURCE: Inorganica Chimica Acta (1995), 232(1-2), 217-21
CODEN: ICHAA3; ISSN: 0020-1693
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

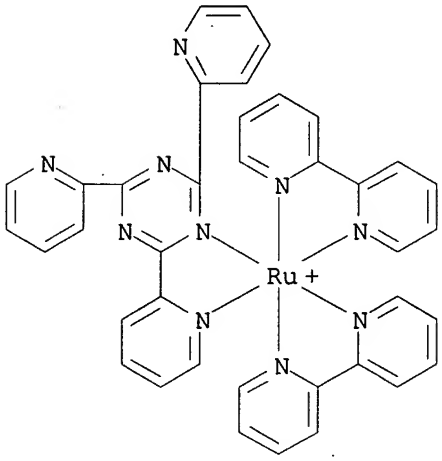
AB Electrochem. and spectroelectrochem. measurements were carried out on [Ru(bpy)2(tpt)]2+ (bpy = 2,2'-bipyridine, tpt = 2,4,6-tris(2-pyridyl)triazine). In DMF solution, this complex undergoes reversible 1-electron redns. at neg. potentials with E°' values of -0.59, -1.22 and -1.48 V vs. Ag/AgCl(3M NaCl). Addnl., two poorly resolved reduction waves are observed at -1.77 and -1.86 V. In acetonitrile, a single metal based **oxidn** . is observed at +1.55 V vs. Ag/AgCl(3M NaCl). UV-visible spectroelectrochem. was used to characterize the complex as well as its 1st three reduction products. From the spectroelectrochem. measurements, the 1st reduction is assigned as a tpt reduction, while the 2nd and 3rd redns. involve sep. bpy ligands.

IT **164532-87-0**
(electrochem. formation and UV-visible spectra in DMF)
RN 164532-87-0 HCAPLUS
CN Ruthenate(1-), bis(2,2'-bipyridine-N,N')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-33)- (9CI) (CA INDEX NAME)

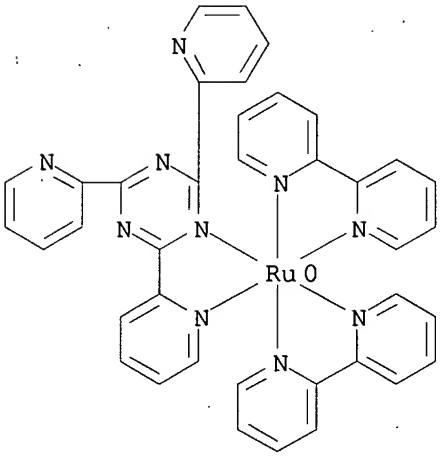



IT **164532-85-8 164532-86-9**
(electrochem. formation and reduction and UV-visible spectra in

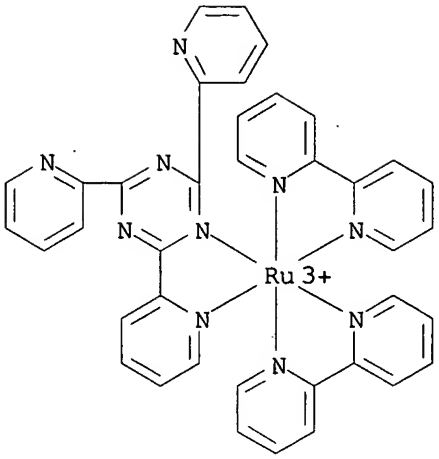
DMF)
RN 164532-85-8 HCAPLUS
CN Ruthenium(1+), bis(2,2'-bipyridine-N,N')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-33)- (9CI) (CA INDEX NAME)



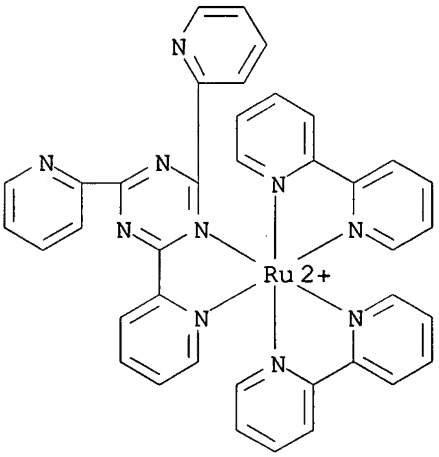

RN 164532-86-9 HCAPLUS
CN Ruthenium, bis(2,2'-bipyridine-N,N')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-33)- (9CI) (CA INDEX NAME)




IT **164532-88-1**
(electrochem. **oxidative** preparation of)
RN 164532-88-1 HCAPLUS
CN Ruthenium(3+), bis(2,2'-bipyridine-N,N')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-33)- (9CI) (CA INDEX NAME)




IT **134388-07-1**
(electrochem. reduction and UV-visible spectra in DMF)
RN 134388-07-1 HCAPLUS
CN Ruthenium(2+), bis(2,2'-bipyridine-N,N')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-33)- (9CI) (CA INDEX NAME)




CC 72-2 (Electrochemistry)
Section cross-reference(s): 73, 78
IT **Oxidation**, electrochemical
(of ruthenium bipyridine pyridyltriazine complex in acetonitrile or DMF)
IT **164532-87-0**
(electrochem. formation and UV-visible spectra in DMF)
IT **164532-85-8 164532-86-9**
(electrochem. formation and reduction and UV-visible spectra in DMF)
IT **164532-88-1**
(electrochem. **oxidative** preparation of)
IT **134388-07-1**
(electrochem. reduction and UV-visible spectra in DMF)

L16 ANSWER 20 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

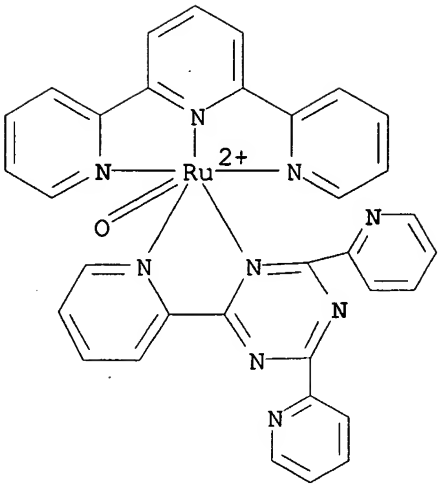
ACCESSION NUMBER: 1993:159825 HCAPLUS
DOCUMENT NUMBER: 118:159825
TITLE: Synthesis and properties of new DNA cleavage agents based on oxoruthenium(IV)
AUTHOR(S): Gupta, Nishi; Grover, Neena; Neyhart, Gregory A.; Singh, Phirtu; Thorp, H. Holden
CORPORATE SOURCE: Dep. Chem., North Carolina State Univ., Raleigh, NC, 27695, USA
SOURCE: Inorganic Chemistry (1993), 32(3), 310-16
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English

AB New aquaruthenium(II) reagents that are capable of being oxidized to hydroxoruthenium(III) and oxoruthenium(IV) were prepared Complexes based on Ru(tpy)(L)OH22+ (L = η2-tpt, phen, dppz, tmen; tpy = 2,2':6',2''-terpyridine, tpt = 2,4,6-tripyridyltriazine, phen = 1,10-phenanthroline, dppz = dipyridophenazine, and tmen = N,N,N',N'-tetramethylethylenediamine) were prepared and can all be reversibly oxidized to their RuIVO forms, which are component DNA cleavage agents, as is Ru(phen)2(py)O2+. In addition to Ru(tpy)(η2-tpt)OH22+, the η3 complex of tpt, Ru(tpy)(η3-tpt)2+, can also be prepared under similar conditions. In the presence of Ag+ ion, a novel Ru2Ag complex can be isolated and was crystallog. characterized. [Ru(tpy)(η3-tpt)](ClO4)2.0.5AgClO4.0.5H2O crystallizes as monoclinic, space group A2/a, a 14.723(5), b 26.061(6), c 22.148(6) Å, β 106.33(3)°, Z = 4, R = 0.0807, Rw = 0.1156. The Ru(tpy)OH22+ unit can also be attached to the tmen-AO+ ligand, where a N,N',N'-trimethylethylenediamine function is appended via a (CH2)6 linker to the acridine orange (HAO) intercalator. The Ru(tpy)(tmen-AO)OH23+ complex is an effective cleavage agent, but only when **oxidation** is performed on the complex prebound to DNA. In homogeneous solution, electrochem. reversible access of only the RuIIIOH form is possible, probably because of **oxidation** of the polymethylene linker.

IT **146344-84-5P**
(formation by **oxidation** and DNA cleavage by)

RN 146344-84-5 HCAPLUS

CN Ruthenium(2+), oxo(2,2':6',2''-terpyridine-N,N',N'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, (OC-6-43)- (9CI) (CA INDEX NAME)



IT **146647-08-7P**
(preparation and crystal structure of)
RN 146647-08-7 HCAPLUS
CN Ruthenium(5+), (silver)bis(2,2':6',2''-terpyridine-N,N',N'')bis[μ-(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6:N3,N4)]di-, pentaperchlorate, monohydrate (9CI) (CA INDEX NAME)

CM 1

CRN 146647-07-6
CMF C66 H46 Ag N18 Ru2 . 5 Cl O4

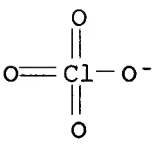
CM 2

CRN 146647-06-5
CMF C66 H46 Ag N18 Ru2
CCI CCS

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

CM 3

CRN 14797-73-0
CMF Cl O4



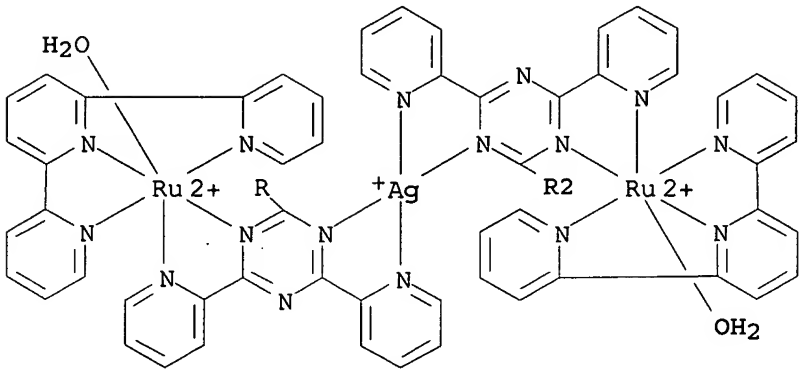
IT **146435-73-6P**
(preparation and cyclic voltammetry and **oxidation** and Pourbaix diagram of)
RN 146435-73-6 HCAPLUS
CN Ruthenium(5+), diaqua(silver)bis(2,2':6',2''-terpyridine-N,N',N'')bis[μ-(2,4,6-tri-2-pyridinyl-1,3,5-triazine-

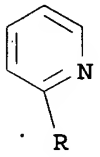
N1,N2:N4,N5)]di-, pentaperchlorate (9CI) (CA INDEX NAME)

CM 1

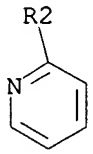
CRN 146435-72-5
CMF C66 H50 Ag N18 O2 Ru2
CCI CCS

PAGE 1-A



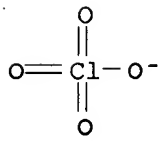




PAGE 2-A

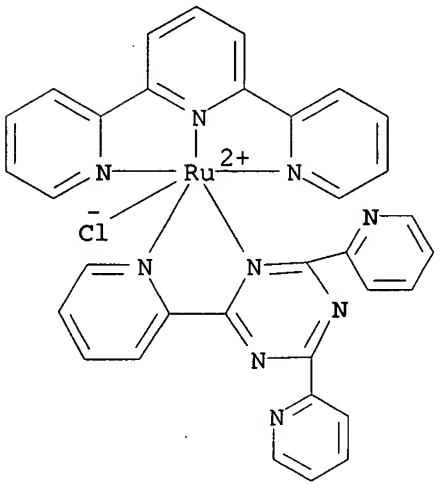



CM 2

CRN 14797-73-0
CMF Cl O4



IT **146344-76-5P**
(preparation and electrochem. **oxidation** and aquation of, in presence of silver perchlorate)
RN 146344-76-5 HCAPLUS
CN Ruthenium(1+), chloro(2,2':6',2''-terpyridine-N,N',N'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2)-, chloride, (OC-6-43)- (9CI) (CA INDEX NAME)

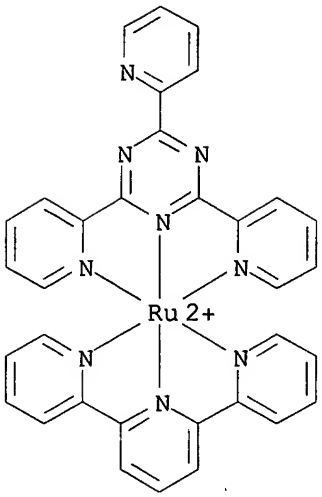


● Cl⁻

IT **134388-06-0**
(reaction of, with silver perchlorate,idle d and elec. potential of)
RN 134388-06-0 HCAPLUS
CN Ruthenium(2+), (2,2':6',2''-terpyridine-κN1,κN1',κN1'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-κN1,κN2,κN6)-, (OC-6-23)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

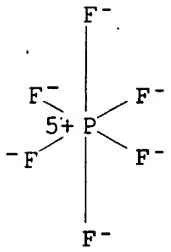
CM 1

CRN 134388-05-9
CMF C33 H23 N9 Ru
CCI CCS



CM 2

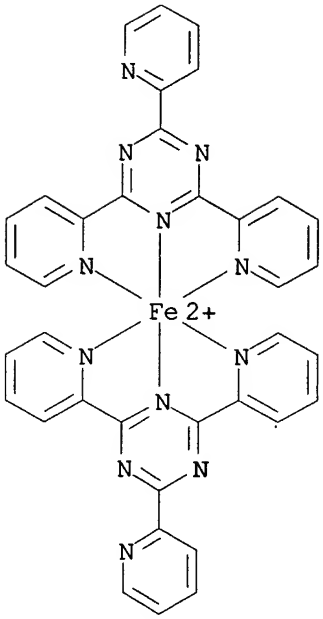
CRN 16919-18-9
CMF F6 P
CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 6, 72, 75
ST crystal structure ruthenium silver trinuclear tripyridyltriazine; DNA cleavage agent oxoruthenium 4 complex; ruthenium terpyridine oxo quaternary complex; electrochem **oxidn** ruthenium 2 terpyridine complex
IT **Oxidation**, electrochemical
(of ruthenium complexes with nitrogen donors)
IT 101241-02-5, Aqua(2,2':6',2''-terpyridine)(1,10-phenanthroline)ruthenium(2+)
(cyclic voltammetry and **oxidation** and acidity constant and Pourbaix diagram of)
IT 127714-17-4, Aqua(2,2':6',2''-terpyridine)(N,N,N'N'-tetramethylethylenediamine)ruthenium(2+)
(cyclic voltammetry and **oxidation** and acidity constant of)
IT **146344-84-5P** 146344-86-7P
(formation by **oxidation** and DNA cleavage by)
IT 98542-34-8P, Oxo(1,10-phenanthroline)(2,2':6',2''-terpyridine)ruthenium(2+) 146344-85-6P
(formation of, by **oxidation**)

IT 67-64-1P, Acetone, preparation
(formation of, in **oxidation** of alc. by ruthenium(IV) oxo complexes)
IT 67-63-0, 2-Propanol, reactions
(**oxidation** of, by ruthenium(IV) oxo complexes)
IT **146647-08-7P**
(preparation and crystal structure of)
IT 146344-80-1P
(preparation and cyclic voltammetry and **oxidation** and DNA cleavage and acidity constant of)
IT 49729-11-5P
(preparation and cyclic voltammetry and **oxidation** and DNA cleavage by)
IT **146435-73-6P**
(preparation and cyclic voltammetry and **oxidation** and Pourbaix diagram of)
IT **146344-76-5P**
(preparation and electrochem. **oxidation** and aquation of, in presence of silver perchlorate)
IT **134388-06-0**
(reaction of, with silver perchlorate,idle d and elec. potential of)

L16 ANSWER 21 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1993:155426 HCAPLUS
DOCUMENT NUMBER: 118:155426
TITLE: The oxalic acid **catalyzed** **oxidation** of bis(2,4,6-tripyridyl-1,3,5-triazine)iron(II) by chromium(VI) in acetate buffer
AUTHOR(S): Satyanarayana, Tatakuntla; Anipindi, Nageswara Rao; Subbiah, Veeraputhiran; Pandit, Madhusudan Waman
CORPORATE SOURCE: Sch. Chem., Andhra Univ., Visakhapatnam, 530 003, India
SOURCE: Transition Metal Chemistry (Dordrecht, Netherlands) (1993), 18(1), 93-5
CODEN: TMCHDN; ISSN: 0340-4285
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The reaction between bis(2,4,6-tri(2-pyridyl)-1,3,5-triazine)iron(II), Fe(TPTZ)22+, and Cr(VI) in acetate buffers is very slow. However, in the presence of oxalic acid ( **catalyst**) it is very fast and is completed within 10 s. The reaction was studied in the 3.6-5.6 pH range by using stopped-flow spectrophotometry. The reaction is first order in the substrate and zero order in the oxidant. The rate of the reaction increases with an increase in pH. Kinetic evidence for complexation between the substrate and the **catalyst** was obtained and a mechanism involving the formation of an ion-pair between Fe(TPTZ)22+ and the oxalate ion is proposed.
IT **22452-38-6**
(**oxidation** of, by chromium(VI), **catalyzed** by oxalic acid, kinetics and mechanism of)
RN 22452-38-6 HCAPLUS
CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 67-2 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 78
ST iron pyridyltriazine **oxidn** chromium oxalic acid
IT **Oxidation**
(of iron(II) tripyridyltriazine complex by chromium(VI), **catalyzed** by oxalic acid)
IT Kinetics of **oxidation**
(of iron(II) tripyridyltriazine complex by chromium(VI), **catalyzed** by oxalic acid, temperature and pH dependences of)
IT **Oxidation catalysts**
(oxalic acid, for iron(II) tripyridyltriazine complex by chromium(VI))
IT 144-62-7, Oxalic acid, uses
(**catalysts**, for **oxidation** of iron(II) tripyridyltriazine complex by chromium(VI))
IT 18540-29-9, Chromium(6+), reactions
(**oxidation** by, of iron(II) tripyridyltriazine complex, **catalyzed** by oxalic acid, kinetics and mechanism of)
IT **22452-38-6**
(**oxidation** of, by chromium(VI), **catalyzed** by oxalic acid, kinetics and mechanism of)

L16 ANSWER 22 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:559471 HCAPLUS
DOCUMENT NUMBER: 117:159471
TITLE: Electrocatalytic reduction of carbon dioxide with iron, cobalt, and nickel complexes of terdentate ligands
AUTHOR(S): Arana, C.; Yan, S.; Keshavarz-K., M.; Potts, K. T.; Abruna, H. D.
CORPORATE SOURCE: Dep. Chem., Cornell Univ., Ithaca, NY, 14853, USA
SOURCE: Inorganic Chemistry (1992), 31(17), 3680-2
CODEN: INOCAJ; ISSN: 0020-1669

DOCUMENT TYPE: Journal
LANGUAGE: English

AB The authors prepared and characterized, by cyclic voltammetry in acetonitrile and DMF (under N2 or CO2), iron, cobalt and nickel complexes of a variety of terdentate ligands including 2,6-diacetylpyridine-bis-aniline (dapa), tetra-2-pyridylpyrazine (tppz), tri-2-pyridyltriazine (tptz), tetra-2-picolylethylenediamine (tpen), terpyridine (tpy) and vinylterpyridine (v-tpy). All of these materials exhibit electrocatalytic activity towards the reduction of CO2 and the magnitude of the **catalytic** effect is a function of both the ligand and the metal center. Depending on the metal complex electrocatalysis is observed at potentials that correspond to metal and ligand based redox processes indicating that more than one mechanism might be operative. In the case of electropolymerizable metal complexes (those incorporating v-tpy) electrodeposited films exhibited electrocatalytic activity as well. In various cases, electrocatalysis was observed at potentials below-1.0 V which represents a very significant diminution (of about 1 V) in the overpotential.

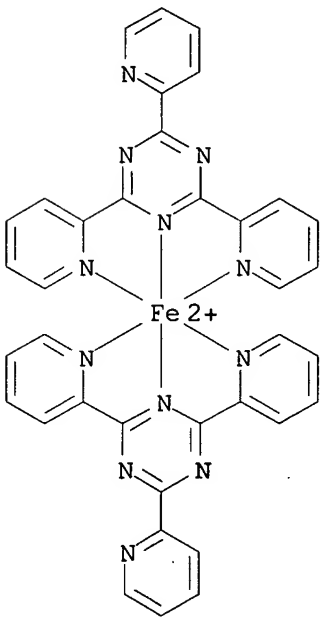
IT **143371-83-9 143371-84-0**
(redox potential and electrocatalytic properties toward carbon dioxide for)

RN 143371-83-9 HCAPLUS

CN Iron(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

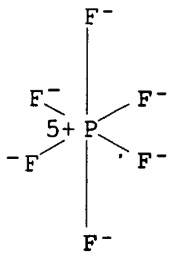
CM 1

CRN 22452-38-6
CMF C36 H24 Fe N12
CCI CCS




CM 2

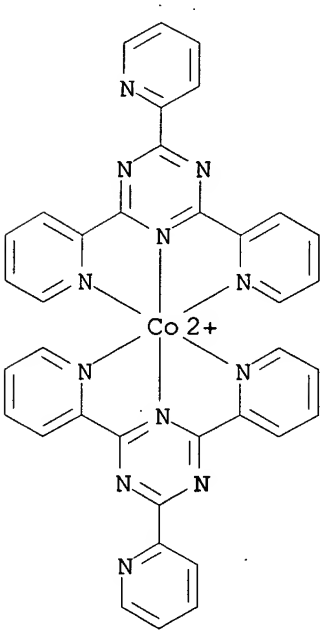
CRN 16919-18-9
CMF F6 P
CCI CCS



RN 143371-84-0 HCAPLUS
CN Cobalt(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

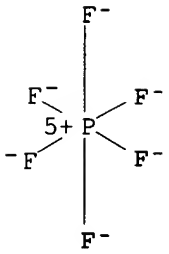
CM 1

CRN 31084-97-6
CMF C36 H24 Co N12
CCI CCS



CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



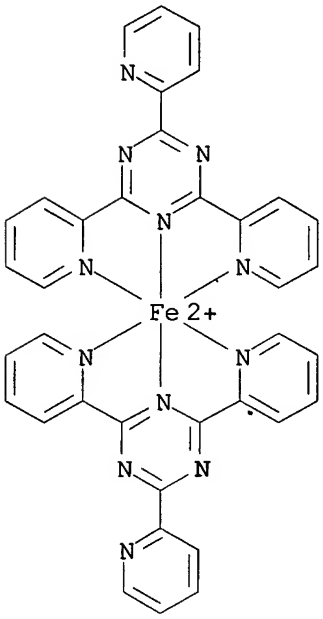
CC 72-2 (Electrochemistry)
Section cross-reference(s): 67
ST carbon dioxide redn electrocatalytic; electroredn **catalytic** oxide transition metal complex; redox potential iron cobalt nickel complex; polymn electrochem complex electrocatalytic property
IT Reduction **catalysts**
(electrochem., transition metal complexes with terdentate ligands, for carbon dioxide)
IT 55140-72-2 65297-32-7 66118-92-1 82738-54-3 108270-37-7
108270-45-7 114320-90-0 121881-83-2 121881-84-3
143371-75-9 143371-76-0 143371-77-1 143371-78-2
143371-79-3 143371-80-6 143371-82-8 **143371-83-9**
**143371-84-0** 143371-85-1 143397-06-2 143428-37-9
143441-84-3
(redox potential and electrocatalytic properties toward carbon dioxide for)

L16 ANSWER 23 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:519268 HCAPLUS
DOCUMENT NUMBER: 117:119268
TITLE: Kinetics and mechanism of the **oxidation** of bis(2,4,6-tripyridyl-1,3,5-triazine)iron(II) by trans-1,2-diaminocyclohexanetetraacetatomanganate(III) in acetate buffer
AUTHOR(S): Satyanarayana, Tatakuntla; Anipindi, Nageswara Rao; Subbiah, Veeraputhiran; Pandit, Madhusudan Waman
CORPORATE SOURCE: Sch. Chem., Andhra Univ., Visakhapatnam, 530003, India
SOURCE: Transition Metal Chemistry (Dordrecht, Netherlands) (1992), 17(4), 325-7
CODEN: TMCHDN; ISSN: 0340-4285
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The rapid **oxidation** of bis(2,4,6-tripyridyl-1,3,5-triazine)iron(II), [Fe(TPTZ)2]2+, by trans-1,2-diaminocyclohexanetetraacetatomanganate(III), [MnIII(L)]-, in acetate buffers was monitored by using stopped-flow spectrophotometry. The reaction is first order in the substrate and evidence was obtained for pre-complexation between the oxidant and the substrate. The reaction rate increases as the pH increases. Characterization of the products by using the radiotracers 54Mn and 59Fe indicated that [MnII(L)]2- and [Fe(TPTZ)2]3+ are the final products. The reaction obeys the rate law: kobs = k3K2[MnIII(L)-]t/{1 + K1[H+] + K2[MnIII(L)-]t}.
IT **22452-38-6**
(**oxidation** of, by manganese(III)

diaminocyclohexanetetraacetato complex ion, kinetics and mechanism of)

RN 22452-38-6 HCAPLUS

CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 67-3 (Catalysis, Reaction Kinetics, and Inorganic Reaction Mechanisms)
Section cross-reference(s): 78

ST iron pyridyltriazine **oxidn** manganese aminocyclohexanetetraacetato kinetics

IT **Oxidation**
(of iron(II) tripyridyltriazine complex by manganese(III) diaminocyclohexanetetraacetato complex, in acetate buffer)

IT Kinetics of **oxidation**
(of iron(II) tripyridyltriazine complex by manganese(III) diaminocyclohexanetetraacetato complex, pH and temperature dependences of)

IT 73360-48-2
(**oxidation** by, of iron(II) tripyridyltriazine complex ion, kinetics and mechanism of)

IT **22452-38-6**
(**oxidation** of, by manganese(III) diaminocyclohexanetetraacetato complex ion, kinetics and mechanism of)

L16 ANSWER 24 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN

ACCESSION NUMBER: 1988:112702 HCAPLUS

DOCUMENT NUMBER: 108:112702

TITLE: Rhodium(I) complexes with the 2,2'-bipyrimidine ligand

AUTHOR(S): Garcia, Maria P.; Millan, Jose L.; Esteruelas, Miguel A.; Oro, Luis A.

CORPORATE SOURCE: Inst. Cienc. Mater. Aragon, Univ. Zaragoza, Zaragoza, 50009, Spain

SOURCE: Polyhedron (1987), 6(6), 1427-31
CODEN: PLYHDE; ISSN: 0277-5387
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 108:112702

AB Mono- and dinuclear rhodium(I) complexes [Rh(L2)(bipym)]+ and [[Rh(L2)]2(μ-bipym)]2+ [bipym = 2,2'-bipyrimidine; L2 = 1,5-cyclooctadiene (cod), tetrafluorobenzobicyclo[1.1.2]octatriene (tfb), bicyclo[2.2.1]heptadiene (nbd), or (CO)2] were prepared and their **catalytic** activity in H-transfer reactions examined The heterodinuclear [Cl2Pd(μ-bipym)Rh(tfb)]ClO4 complex was obtained by treating [Rh(tfb)(bipym)]+ with [PdCl2(cod)] or alternatively from [Rh(tfb)(Me2CO)x]+ with [PdCl2(bipym)]. Ion-pair complexes [Rh(L2)(bipym)]+[RhCl2(L2)]- (L2 = cod, nbd, tfb) were prepared by adding bipym to Me2CO suspensions of [RhCl(L2)]2.

IT **113006-62-5P**
(preparation of)

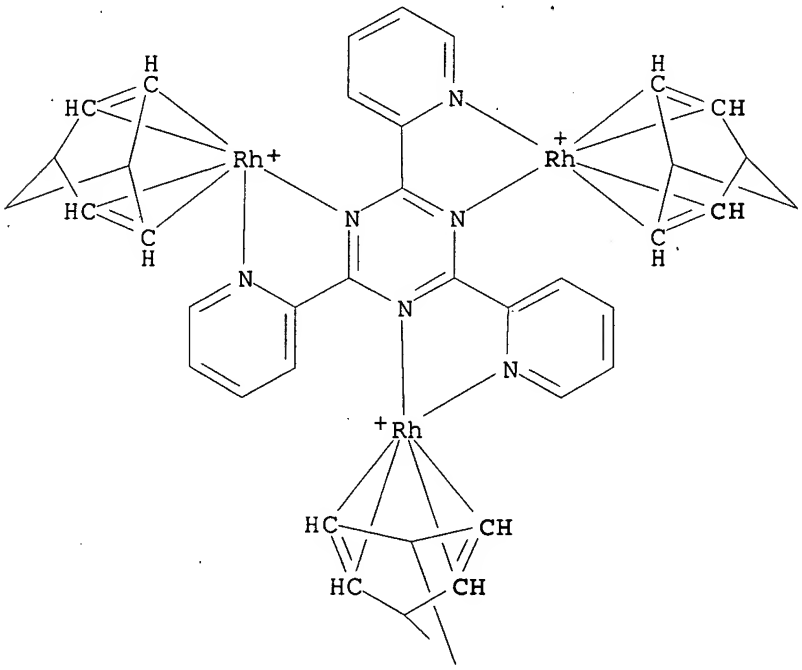
RN 113006-62-5 HCAPLUS

CN Rhodium(3+), tris[(2,3,5,6-η)-bicyclo[2.2.1]hepta-2,5-diene][μ3-(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2:N3,N4:N5,N6)]tri-, triperchlorate (9CI) (CA INDEX NAME)

CM 1

CRN 113006-61-4
CMF C39 H36 N6 Rh3
CCI CCS

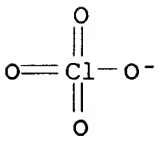
PAGE 1-A



PAGE 2-A

CM 2

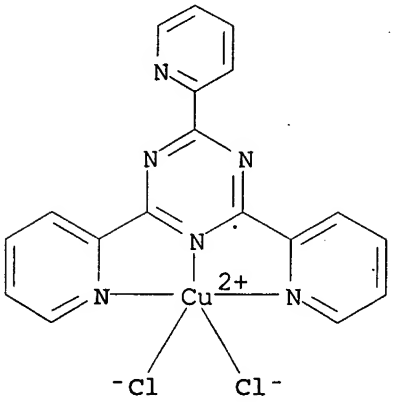
CRN 14797-73-0
CMF Cl O4



CC 29-13 (Organometallic and Organometalloidal Compounds)
ST rhodium bipyrimidine olefin complex; hydrogen transfer **catalyst** rhodium complex; conductance rhodium bipyrimidine complex
IT Hydrogen transfer **catalysts**
(rhodium bipyrimidine olefin complexes, for hydrogen transfer from isopropanol to acetophenone)
IT 98-86-2, Acetophenone, reactions
(hydrogen transfer from isopropanol to, rhodium bipyrimidine complexes as **catalysts** for)
IT 67-63-0, Isopropanol, reactions
(hydrogen transfer from, to acetophenone, rhodium bipyrimidine complexes as **catalysts** for)
IT 105083-99-6P 112987-39-0P 112987-41-4P 112987-43-6P
112987-45-8P 112987-47-0P 112987-48-1P 112987-50-5P
112987-51-6P 112987-52-7P 113006-55-6P 113006-57-8P
113006-59-0P 113006-60-3P **113006-62-5P**
(preparation of)

L16 ANSWER 25 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1988:62131 HCAPLUS
DOCUMENT NUMBER: 108:62131
TITLE: Study confirming the accuracy of a method for measuring TOC by wet **oxidation**
AUTHOR(S): Sakamoto, T.; Miyasaka, T.
CORPORATE SOURCE: Japan Organo Co., Ltd., Tokyo, 113, Japan
SOURCE: Ultrapure Water (1987), 4(9), 24, 26-8, 30-1
CODEN: ULWAE5; ISSN: 0747-8291
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Synthetic and natural organic compds. of known chemical structures were used to compare the accuracy of total organic C (TOC) determination in water and wastewater by a wet **oxidation** method (S2082-**oxidation** combined with UV irradiation) with the accuracy of combustion-IR anal. The latter method was little affected by inorg. salts. NaCl at concns. of >250 mg/L considerably interfered with TOC determination by the wet **oxidation**, whereas Na2SO4 at a concentration of ≤2000 mg/L showed no interference.
IT **107017-20-9**
(determination of, in water, wet **oxidation** method in)

RN 107017-20-9 HCAPLUS
CN Copper, dichloro(2,4,6-tri-2-pyridinyl-1,3,5-triazine-κN1,κN2,κN6)-, trihydrate (9CI) (CA INDEX NAME)



● 3 $H_2O$

CC 61-3 (Water)
Section cross-reference(s): 80
ST carbon org detn wet **oxidn**; analysis water carbon wet **oxidn**; wastewater org carbon detn **oxidn**
IT Fulvic acids
Humic acids
Peptones
(determination of, in water, wet **oxidation** method in)
IT 7440-44-0, Carbon, analysis
(determination of total organic, in water, wet **oxidation** method in)
IT 50-99-7, D-Glucose, analysis 61-73-4, Methylene Blue 64-17-5, Ethanol, analysis 65-85-0, Benzoic acid, analysis 66-71-7, 1,10-Phenanthroline 67-56-1, Methanol, analysis 67-63-0, 2-Propanol, analysis 67-64-1, Acetone, analysis 77-92-9, Citric acid, analysis 83-07-8, 4-Aminoantipyrine 121-57-3 142-87-0, Decyl sodium sulfate 148-24-3, 8-Quinolinol, analysis 151-21-3, analysis 547-58-0, Methyl Orange 633-96-5, Orange II 877-24-7, Potassium hydrogen phthalate 1191-50-0, Tetradecyl sodium sulfate 2386-54-1 2832-45-3 5324-47-0 13419-61-9 16177-21-2, L-Sodium glutamate 25155-30-0 58115-02-9 **107017-20-9**
(determination of, in water, wet **oxidation** method in)
IT 7732-18-5, Water, analysis
(organic carbon determination in, wet **oxidation** method for, accuracy of)

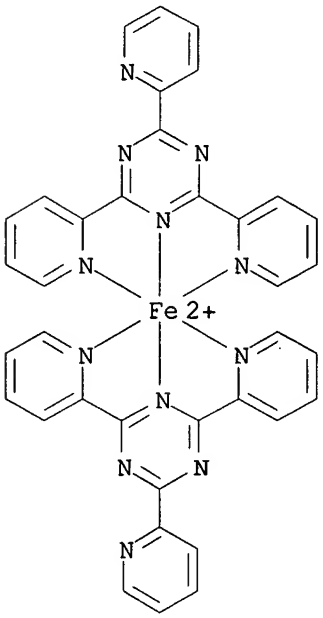
L16 ANSWER 26 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1984:141193 HCAPLUS
DOCUMENT NUMBER: 100:141193
TITLE: Electrochemical sensors for anionic surfactants. I. The electrode based on bis[2,4,6-tris(2-pyridyl)-1,3,5-triazine]iron(II) dodecyl sulfate
AUTHOR(S): Pak, U. Sap; Anghel, D. F.; Luca, C.

CORPORATE SOURCE: Dep. Chem. Phys., Inst. Chem. Res., Bucharest, R-77208, Rom.
SOURCE: Revue Roumaine de Chimie (1983), 28(9-10), 883-90
CODEN: RRCHAX; ISSN: 0035-3930
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A dodecyl sulfate-selective electrode is described which is based on an iron(II)-2,4,6-tri(2-pyridyl)-1,3,5-triazine (1:2) [**22452-38-6**] complex. The concentration of the complex in the membrane mediator (PhNO2) is 10-3M. The electrode has a Nernstian slope within the activity range 7.1 + 10-6-1.4 + 10-3M of dodecyl sulfate. The electrode behavior does not depend on pH in the range 4.5-9.0. The electrode has good selectivity with respect to interference by inorg. compds. Among the organic anions, only surfactant anions interfere. The sensor allows determination of critical micelle concentration in the absence or presence or inorg. electrolytes. It has been used as the end-point detector in potentiometric titration of ionic surfactants and for the determination of anionic surfactant content of micellar solns. used for enhanced oil recovery.

IT **22452-38-6**
(electrodes containing, dodecyl sulfate-selective)

RN 22452-38-6 HCAPLUS
CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 46-1 (Surface Active Agents and **Detergents**)

IT **22452-38-6**
(electrodes containing, dodecyl sulfate-selective)

L16 ANSWER 27 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1982:112159 HCAPLUS
DOCUMENT NUMBER: 96:112159
TITLE: Solution redox couples for electrochemical

energy storage. II. Cobalt(III)-cobalt(II) complexes with o-phenanthroline and related ligands

AUTHOR(S): Chen, Yih Wen D.; Santhanam, K. S. V.; Bard, Allen J.

CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, 78712, USA

SOURCE: Journal of the Electrochemical Society (1982), 129(1), 61-6
CODEN: JESOAN; ISSN: 0013-4651

DOCUMENT TYPE: Journal

LANGUAGE: English

AB Co(III) and Co(II) complexes with o-phenanthroline, bipyridine, and related ligands were examined by voltammetric and coulometric techniques in aqueous H2SO4 media to investigate their suitability as redox couples for electrochem. energy storage systems and semiconductor photoelectrochem. cells. The Co(II) complex undergoes a rapid (.apprx.10-3 cm/s) 1-electron **oxidation** at a graphite or Pt electrode to yield the Co(III) complex. With several ligands, both forms of the couple are very stable and show formal potentials shifted very neg. (to .apprx.0.1 V vs. SCE) from that of the aqua-Co(III/II) couple.

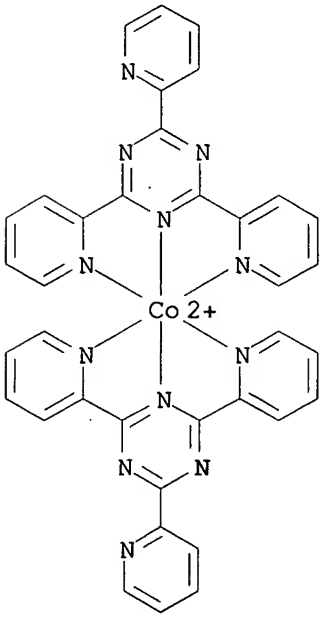
IT **80995-91-1**
(**oxidation** of, kinetics of electrochem., in aqueous sulfuric acid solution)

RN 80995-91-1 HCAPLUS

CN Cobalt(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)-, sulfate (1:1) (9CI) (CA INDEX NAME)

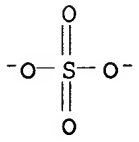
CM 1

CRN 31084-97-6
CMF C36 H24 Co N12
CCI CCS

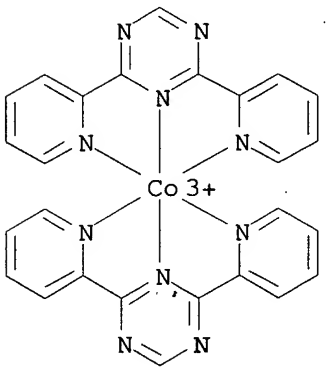


CM 2

CRN 14808-79-8
CMF O4 S



IT **80923-87-1**
(redox reaction of system containing, electrochem., in sulfate solns.)
RN 80923-87-1 HCAPLUS
CN Cobalt(3+), bis(2,4-di-2-pyridinyl-1,3,5-triazine-N2,N3,N4)-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



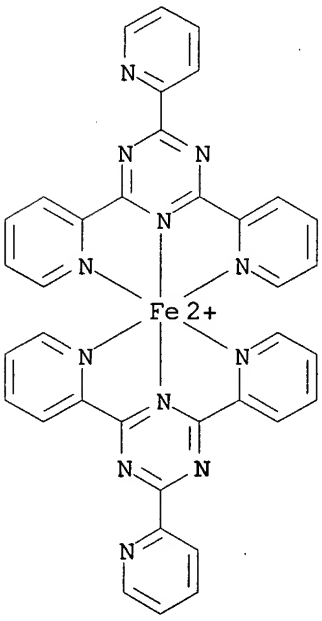
CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 67, 68, 78
IT Kinetics of **oxidation**
(electrochem., of cobalt complexes with bipyridine and phenanthroline and related ligands, in aqueous sulfuric acid solution)
IT 7440-06-4, uses and miscellaneous 7782-42-5, uses and miscellaneous
(electrode, electrochem. **oxidation** of cobalt complexes on, in sulfate solution)
IT 7439-97-6, uses and miscellaneous
(electrode, electrochem. **oxidation** of cobalt-phenanthroline complexes on, in sulfate solution)
IT 26096-51-5 70765-25-2 77610-09-4 80711-12-2 80711-13-3 80733-46-6 **80995-91-1**
(**oxidation** of, kinetics of electrochem., in aqueous sulfuric acid solution)
IT 18581-79-8 19052-39-2 19137-07-6 62791-75-7 80711-14-4 80711-15-5 **80923-87-1**
(redox reaction of system containing, electrochem., in sulfate solns.)

L16 ANSWER 28 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1981:622817 HCAPLUS

DOCUMENT NUMBER: 95:222817
TITLE: Solution redox couples for electrochemical energy storage. I. Iron(III)-iron(II) complexes with o-phenanthroline and related ligands
AUTHOR(S): Chen, Yih-Wen D.; Santhanam, K. S. V.; Bard, Allen J.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, 78712, USA
SOURCE: Journal of the Electrochemical Society (1981), 128(7), 1460-7
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Fe3+-Fe2+ complexes with o-phenanthroline and related ligands were examined by electrochem. techniques in aqueous H2SO4 media for their suitability as redox couples for electrochem. energy storage. The Fe2+ complexes undergo a rapid 1-electron **oxidation** at graphite and Pt electrodes to yield Fe3+ complexes; these complexes showed varying stabilities depending on the nature of the substituents on the complexes. The Fe2+ complexes examined were formed with monodentate, bidentate, or tridentate ligands. The redox couples have a high potential, E0, value which was a pos. consideration in the storage. Although the aquo Fe2+-Fe3+ couple has an E0 less than the complexes, it has a greater promise in terms of storage stability. The kinetics of Fe2+ complexation was followed by cyclic voltammetry.

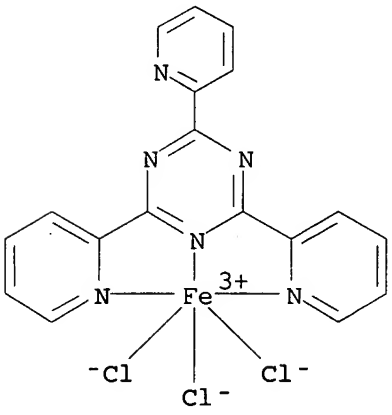
IT **22452-38-6**
(for redox-flow batteries, properties of)
RN 22452-38-6 HCAPLUS
CN Iron(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)
IT 14708-99-7 15025-74-8 15053-59-5 15226-33-2 15245-50-8

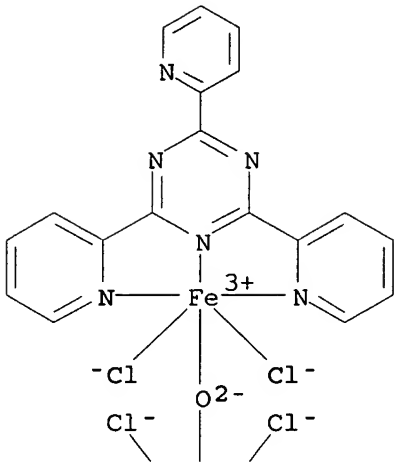
17455-70-8 18131-30-1 **22452-38-6** 55290-28-3
79968-89-1 79968-90-4
(for redox-flow batteries, properties of)

L16 ANSWER 29 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1981:543300 HCAPLUS
DOCUMENT NUMBER: 95:143300
TITLE: Characterization of the thermolysis products of Fe(TPTZ)2Cl2·nH2O and the related 2,4,6-tris(2-pyridyl)-1,3,5-triazine complexes Zn(TPTZ)Cl2 and Fe(TPTZ)Cl3
AUTHOR(S): Sedney, Diana; Kahjehnassiri, Mina; Reiff, William Michael
CORPORATE SOURCE: Dep. Chem., Northeastern Univ., Boston, MA, 02115, USA
SOURCE: Inorganic Chemistry (1981), 20(10), 3476-81
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A new five-coordinate ferrous complex, Fe(TPTZ)Cl2 (TPTZ = 2,4,6-tris(2-pyridyl)-1,3,5-triazine) was prepared by thermolysis of the hydrate of the bis complex. The neat powder form of this species undergoes a slow, irreversible **oxidation** in the atmospheric at ambient temperature to the very strongly antiferromagnetically coupled ferric dimer [Fe(TPTZ)Cl2]2O. These complexes as well as the related Zn(TPTZ)Cl2 and Fe(TPTZ)Cl3 were characterized by a variety of phys. methods.
IT **78529-67-6P**
(preparation and Moessbauer spectrum of)
RN 78529-67-6 HCAPLUS
CN Iron, trichloro[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-21)- (9CI) (CA INDEX NAME)

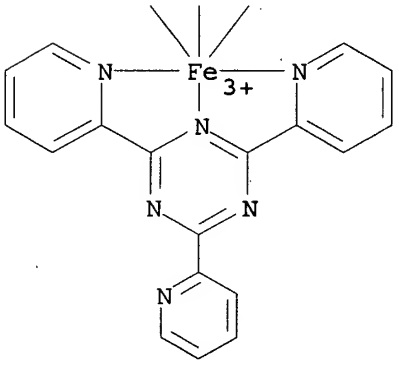



IT **78529-68-7P**
(preparation and magnetic properties of)
RN 78529-68-7 HCAPLUS
CN Iron, tetrachloro-μ-oxobis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)di- (9CI) (CA INDEX NAME)

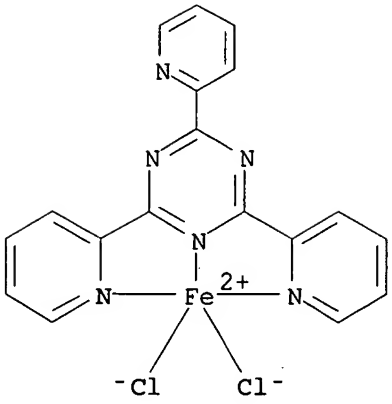
PAGE 1-A



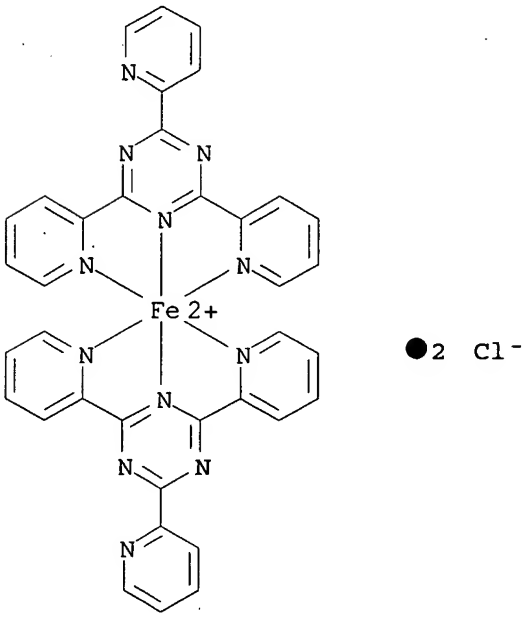
PAGE 2-A



IT **78529-69-8P**
(preparation and **oxidation** of)
RN 78529-69-8 HCAPLUS
CN Iron, dichloro(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (TB-5-33)- (9CI) (CA INDEX NAME)



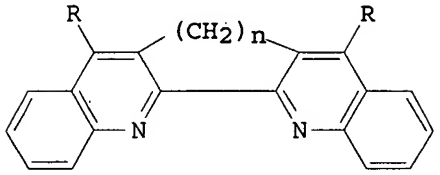
IT **78529-70-1**
(thermal decomposition of)
RN 78529-70-1 HCAPLUS
CN Iron(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, dichloride, (OC-6-1'2)- (9CI) (CA INDEX NAME)



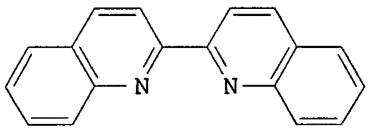
CC 78-7 (Inorganic Chemicals and Reactions)
IT **78529-67-6P**
(preparation and Moessbauer spectrum of)
IT **78529-68-7P**
(preparation and magnetic properties of)
IT **78529-69-8P**
(preparation and **oxidation** of)
IT **78529-70-1**
(thermal decomposition of)

L16 ANSWER 30 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1981:10534 HCAPLUS

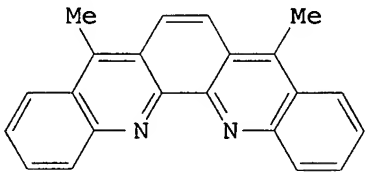
DOCUMENT NUMBER: 94:10534
TITLE: Synthesis, spectroscopic properties and electrochemical behavior of ruthenium(II) complexes with bidentate nitrogen ligands
AUTHOR(S): Belser, Peter; Von Zelewsky, Alex
CORPORATE SOURCE: Inst. Anorg. Chem., Univ. Fribourg, Fribourg, CH-1700, Switz.
SOURCE: Helvetica Chimica Acta (1980), 63(6), 1675-702
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: German
GI




I




II



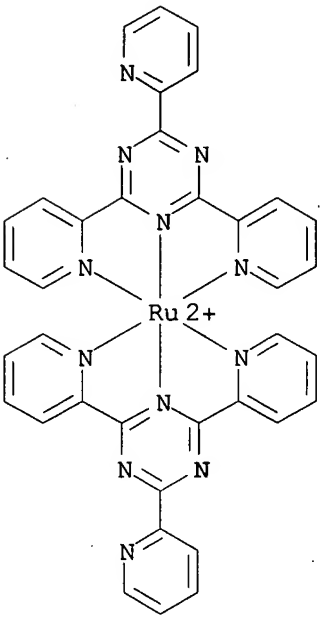

III

AB [Ru(bipy)3-xLx](PF6)2 [bipy = 2,2'-bipyridine; L = I (n = 1 or 3, R = Me, Ph; n = 2, R = H, Me, Ph), II, III, 4-nitro-2,2'-bipyridine, 4,4'-dichloro- and 4,4'-di-tert-butyl-2,2'-bipyridine, 2,9-dimethyl- and 4,7-diphenyl-1,10-phenanthroline, 2,4,6-tris(2-pyridyl)-1,3,5-triazine, 2-(phenyliminomethyl)pyridine; x = 0-3] were prepared and characterized by chemical anal., electronic, IR, NMR, and CD spectra, and cyclic voltammetry. The ligands L are related to bipy but differ from it in their π-electron systems. In some ligands, e.g. I (n = 2, R = Me), the 2 halves of the mol. are forced to be nonplanar by the aliphatic bridge between the 2 rings. The properties of the mixed-ligand complexes are compared with those of [Ru(bipy)3]2+; the former show ≥1 spin-allowed charge-transfer transitions at longer wavelength than those of the latter. The ground-state **oxidation** potentials to the 3+ state are little affected by substitution of bipy by L whereas the reduction behavior is strongly affected. The 'H NMR spectra indicate rigid conformations of some of the nonplanar L ligands in the complexes.

IT **75964-99-7**
(electronic spectrum of, charge-transfer bands in)
RN 75964-99-7 HCAPLUS
CN Ruthenium(2+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)-, bis[hexafluorophosphate(1-)] (9CI) (CA INDEX NAME)

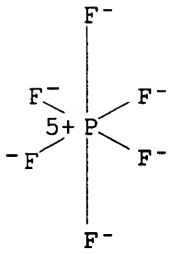
CM 1

CRN 61037-16-9
CMF C36 H24 N12 Ru
CCI CCS



CM 2

CRN 16919-18-9
CMF F6 P
CCI CCS



CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 72, 73
IT 66810-60-4 **75964-99-7**
(electronic spectrum of, charge-transfer bands in)

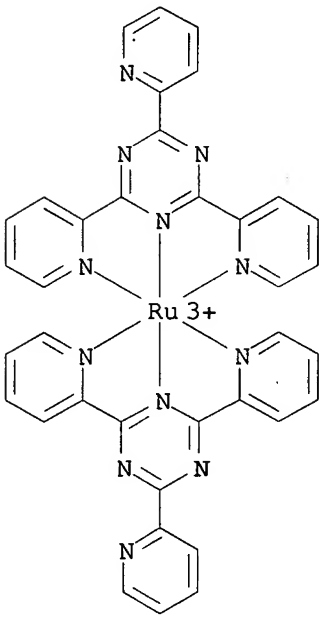
L16 ANSWER 31 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1979:212251 HCAPLUS
DOCUMENT NUMBER: 90:212251
TITLE: Semiconductor electrodes. XVII. Electrochemical behavior of n- and p-type indium phosphide electrodes in acetonitrile

solutions
AUTHOR(S): Kohl, Paul A.; Bard, Allen J.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, USA
SOURCE: Journal of the Electrochemical Society (1979), 126(4), 598-603
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The photoelectrochem. behavior of n- and p-InP single-crystal semiconductors was investigated in MeCN solns. which contained various electroactive compds. The cyclic voltammograms of the semiconductors in the dark and illuminated with red light were compared to the Nernstian behavior at a Pt electrode. The extent of photodissoln. of the semiconductors was decreased in MeCN compared to aqueous solns. at similar potentials. Intermediate levels or surface sites located between the conduction band and valence band which mediate electron transfer with solution redox couples are proposed. An undervoltage was developed for the photo assisted **oxidns.** and redns. with n- and p-InP, resp., and the potential range for photoredns. on p-InP extended neg. of the conduction band edge. The electrochem. behavior and magnitude of the undervoltages is compared to results with InP in aqueous solns. and with other semiconductors in MeCN.

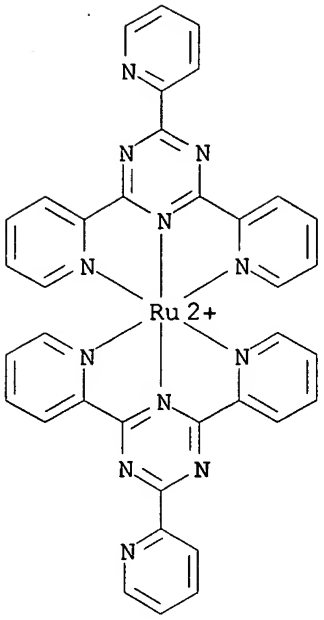
IT **21791-68-4**
(voltammetry of, on indium phosphide in acetonitrile, illumination effect on)

RN 21791-68-4 HCAPLUS
CN Ruthenium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

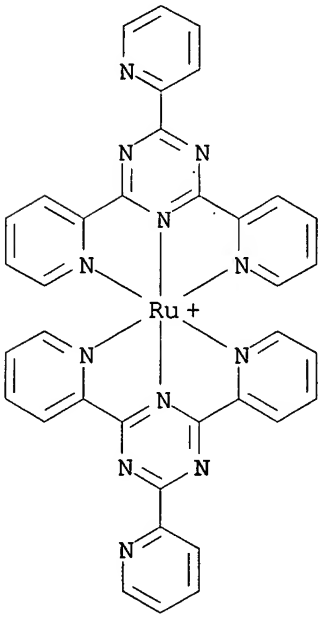



IT **61037-16-9 69666-63-3 69667-97-6**
(voltammetry of, on indium phosphide, illumination effect on)

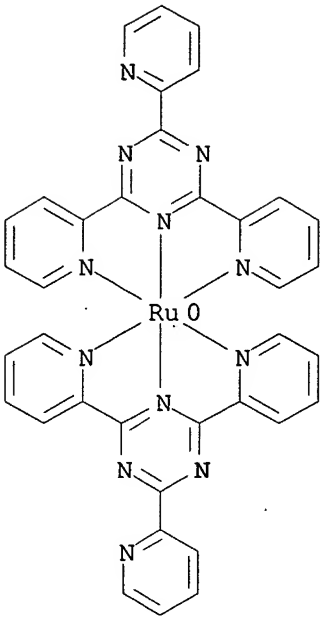
RN 61037-16-9 HCAPLUS
CN Ruthenium(2+), bis(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 69666-63-3 HCAPLUS
CN Ruthenium(1+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




RN 69667-97-6 HCAPLUS
CN Ruthenium, bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



CC 72-11 (Electrochemistry)
Section cross-reference(s): 74, 76
ST indium phosphide electrode voltammetry light; semiconductive indium phosphide electrode; acetonitrile semiconductive indium phosphide electrode; redox reaction photoelectrochem indium phosphide; redn photoelectrochem indium phosphide; **oxidn** photoelectrochem indium phosphate
IT **Oxidation**, electrochemical
**Oxidation**, photochemical
Reduction, electrochemical
Reduction, photochemical
(on indium phosphide, in acetonitrile)
IT 84-65-1 100-22-1 106-51-4, reactions 120-12-7, reactions 15158-62-0 **21791-68-4** 28351-02-2 34527-55-4 47367-75-9 62671-94-7
(voltammetry of, on indium phosphide in acetonitrile, illumination effect on)
IT 3225-29-4, properties 3426-73-1 15158-62-0 34505-64-1 34509-92-7, reactions 56977-24-3 **61037-16-9** **69666-63-3** **69667-97-6**
(voltammetry of, on indium phosphide, illumination effect on)

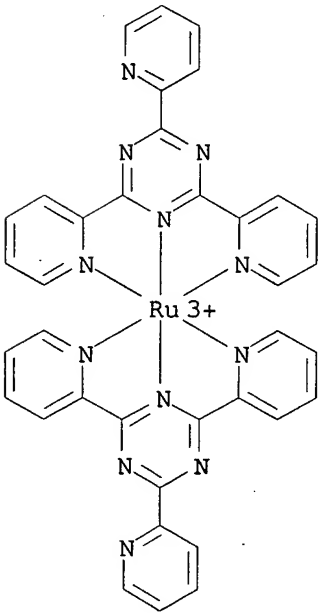
L16 ANSWER 32 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1979:143507 HCAPLUS
DOCUMENT NUMBER: 90:143507
TITLE: Semiconductor electrodes. XVI. The characterization and photoelectrochemical behavior of n- and p-gallium arsenide electrodes in acetonitrile solutions
AUTHOR(S): Kohl, P. A.; Bard, A. J.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, USA
SOURCE: Journal of the Electrochemical Society (1979), 126(1), 59-67
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The cyclic voltammograms of the semiconductor electrodes in the dark and illuminated with red light are compared to the Nernstian behavior at a Pt disk electrode. The photodissol. of the semiconductors was suppressed and did not occur until potentials well pos. of the flatband potential. An undervoltage(neg. overvoltage) was developed on the photoassisted **oxidation** (n-type semiconductor) and reduction (p-type material) of the solution species. Intermediate levels or surface states are capable of mediating electron transfer and limiting the magnitude of the undervoltage produced. The production of surface films at potentials neg.of the conduction bandedge can produce a photovoltaic effect with the GaAs assisting in the electron transfer. Thus, photoassisted electron transfer with electroactive solution species is observed spanning a potential range >2.5 V utilizing a 1.35 eV photon.

IT **21791-68-4**
(reduction of, electrochem. on semiconductive gallium arsenide, illumination effect on)

RN 21791-68-4 HCAPLUS

CN Ruthenium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

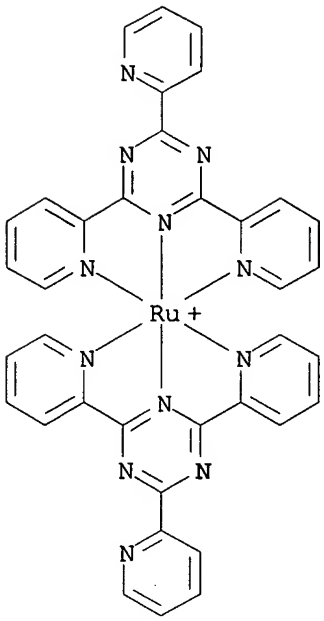



(redn. of, electrochem., on semiconductive gallium arsenide, illumination effect on

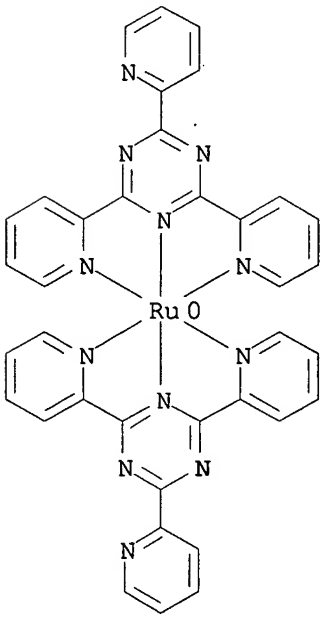
IT **69666-63-3 69667-97-6 69730-33-2**
(redox reaction of systems containing, electrochem., on semiconductive gallium arsenide, illumination effect on)

RN 69666-63-3 HCAPLUS

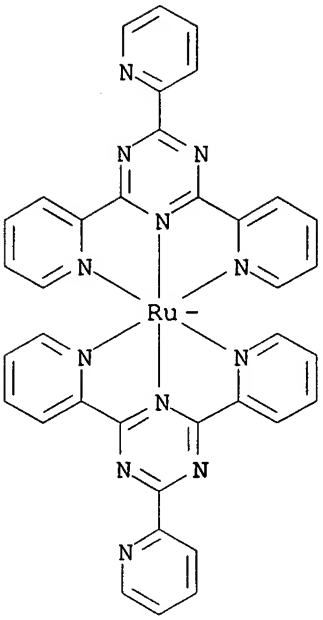
CN Ruthenium(1+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 69667-97-6 HCAPLUS
CN Ruthenium, bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



RN 69730-33-2 HCAPLUS
CN Ruthenate(1-), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)



CC 72-11 (Electrochemistry)
Section cross-reference(s): 74, 76
IT **Oxidation**, electrochemical
(of ruthenium complexes and reduced organic compds., on gallium arsenide)
IT 100-22-1 3225-29-4, reactions 3426-73-1 62671-94-7 69483-88-1
(**oxidation** of, electrochem., on semiconductive gallium arsenide electrodes, illumination effect on)
IT 34505-64-1 34509-92-7, reactions
(**oxidation** of, electrochem., on semiconductive gallium arsenide, illumination effect on)
IT **21791-68-4**
(reduction of, electrochem. on semiconductive gallium arsenide, illumination effect on)
IT 84-65-1 106-51-4, reactions 120-12-7, reactions 15158-62-0 **21791-68-4** 28351-02-2 34527-55-4 47367-75-9
(reduction of, electrochem., on semiconductive gallium arsenide, illumination effect on)
IT 15158-62-0 56977-24-3 **69666-63-3 69667-97-6 69730-33-2**
(redox reaction of systems containing, electrochem., on semiconductive gallium arsenide, illumination effect on)

L16 ANSWER 33 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1976:10406 HCAPLUS
DOCUMENT NUMBER: 84:10406
TITLE: Semiconductor electrodes. II. Electrochemistry at n-type titanium dioxide electrodes in acetonitrile solutions
AUTHOR(S): Frank, S. N.; Bard, Allen J.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, USA
SOURCE: Journal of the American Chemical Society (1975), 97(26), 7427-33
CODEN: JACSAT; ISSN: 0002-7863

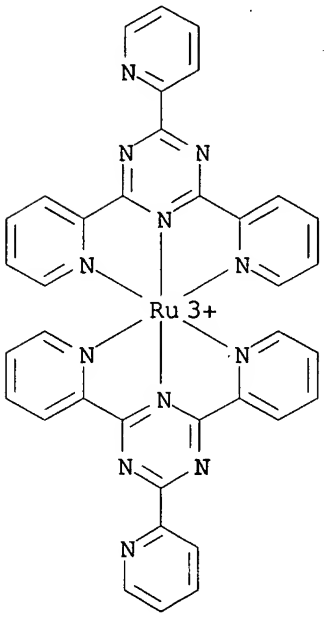
DOCUMENT TYPE: Journal
LANGUAGE: English

AB The electrode response of single crystal n-type TiO2 [13463-67-7] in MeCN was investigated with a large number of electroactive compds. differing widely in their standard potentials. The electrochem. behavior of various compds. can be used to investigate the band structure of the semiconductor electrode. This method is useful in detecting intermediate energy levels between the conduction and valence bands capable of mediating electron transfer and in assigning energies to these levels. For TiO2, at least 1 intermediate energy level was located about 1.2 eV below the conduction band. Polycryst. TiO2 was shown to respond in a similar fashion, indicating that the intermediate energy level is characteristic of n-type TiO2. A comparison of the behavior of metal and semiconductor electrodes as a function of the redox potential of various couples and the effect of light on **oxidns.** at the TiO2 electrodes is discussed.

IT **21791-68-4**
(redox potential of, at platinum and titanium dioxide electrodes)

RN 21791-68-4 HCAPLUS

CN Ruthenium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)

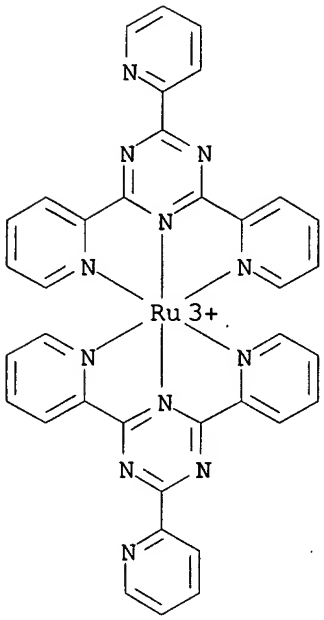



CC 72-7 (Electrochemistry)
Section cross-reference(s): 76

IT Photovoltaic effect
(at titanium dioxide electrodes, **oxidns.** in relation to)

IT 84-65-1 106-51-4, properties 120-12-7, properties 120-46-7 1499-10-1 18955-01-6 **21791-68-4** 34507-27-2 34510-35-5 34527-55-4
(redox potential of, at platinum and titanium dioxide electrodes)

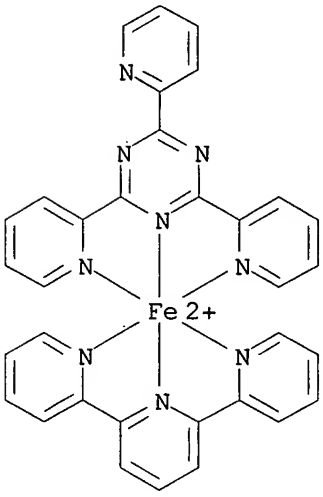
L16 ANSWER 34 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1973:552272 HCAPLUS
DOCUMENT NUMBER: 79:152272
TITLE: Electrogenerated chemiluminescence. XIII. Electrochemical and electrogenerated chemiluminescence studies of ruthenium chelates
AUTHOR(S): Tokel-Takvoryan, Nurhan E.; Hemingway, Ronald E.; Bard, Allen J.
CORPORATE SOURCE: Dep. Chem., Univ. Texas, Austin, TX, USA
SOURCE: Journal of the American Chemical Society (1973), 95(20), 6582-9
CODEN: JACSAT; ISSN: 0002-7863
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The electrochemistry and electrogenerated chemiluminescence (ecl) of 4 Ru(II) chelates, RuLxn+ (x = 3, n = 2, L = 2,2'-bipyridine (bipy); x = 3, n = 2, L = 1,10-phenanthroline (o-phen); x = 2, n = 2, L = 2,2',2''-terpyridine(terpy); x = 2, n = 3, L = 2,4,6-tripyridyl-s-triazine, in MeCN solns. were investigated. All compds. showed evidence of several 1-electron reduction and **oxidation** steps to form products stable during cyclic voltammetric scans. Coulometric and rotating ring-disk electrode (RRDE) studies of the bipy chelate were also carried out. The bipy, o-phen, and terpy chelates produce ecl via redox reactions of oxidized and reduced forms to form an emitting species, which has been identified as the triplet state by comparison to its luminescence spectrum; the ecl of the bipy chelate is the most intense. A study of ecl of the bipy chelate at the RRDE yielded an ecl efficiency of 5-6%.
IT **21791-68-4**
(chemiluminescence of, electrogenerated, redox behavior in relation to)
RN 21791-68-4 HCAPLUS
CN Ruthenium(3+), bis[2,6-di(2-pyridinyl-κN)-4-(2-pyridinyl)-1,3,5-triazine-κN1]-, (OC-6-1'2)- (9CI) (CA INDEX NAME)




CC 77-12 (Electrochemistry)
Section cross-reference(s): 73
IT 15158-62-0 **21791-68-4** 22873-66-1 24414-01-5
(chemiluminescence of, electrogenerated, redox behavior in relation to)

L16 ANSWER 35 OF 35 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1972:41433 HCAPLUS
DOCUMENT NUMBER: 76:41433
TITLE: Synthesis, isolation, and characterization of some iron(II) complexes with mixed α,α'-diimine ligands
AUTHOR(S): Taylor, P. J.; Schilt, A. A.
CORPORATE SOURCE: Chem. Dep., North. Illinois Univ., DeKalb, IL, USA
SOURCE: Inorganica Chimica Acta (1971), 5(4), 691-7
CODEN: ICHAA3; ISSN: 0020-1693
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Syntheses are described for mixed ligand complexes of the type [Fe(hen)n-L3-n]X2 and [Fe(terpy)(TPTZ)]X2 (where n=1 or 2, phen=1,10-phenanthroline, L=methyl-, phenyl-, nitro-, or chlorosubstituted 1,10-phenanthroline, terpy=2,2',2''-terpyridine, TPTZ=tris(2-pyridyl)-1,3,5-triazine and X=ClO-4 and I-) and [Fe(phen)nL3-n'] (where n=2 and L'=4,7-dihydroxy-1,10-phenanthrolinato, 4,7-diphenyl-1,10-phenanthrolinedisulfonato or dimethylglyoximato; also where n=1 and L'=4,7-dihydroxy-1,10-phenanthrolinato, 1,10-phenanthrolinato, 1,10-phenanthroline-5-sulfonato or phenyl-2-pyridyl ketoximato). The formal **oxidation**-reduction potentials and visible absorption spectra of these mixed ligand complexes show certain regularities in comparisons with related unmixed complexes that are of theoretical interest and practical significance. These are discussed.
IT **35235-48-4P 35260-77-6P**
(preparation of)

RN 35235-48-4 HCAPLUS
CN Iron(2+), (2,2':6',2''-terpyridine-N,N',N'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, diiodide (9CI) (CA INDEX NAME)

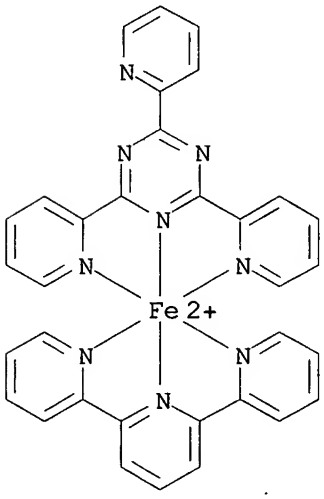



●2 $I^-$

RN 35260-77-6 HCAPLUS
CN Iron(2+), (2,2':6',2''-terpyridine-N,N',N'')(2,4,6-tri-2-pyridinyl-1,3,5-triazine-N1,N2,N6)-, diperchlorate (9CI) (CA INDEX NAME)

CM 1

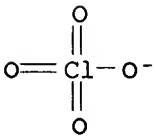
CRN 47838-15-3
CMF C33 H23 Fe N9
CCI CCS




CM 2

CRN 14797-73-0

CMF Cl O4



CC 78 (Inorganic Chemicals and Reactions)
IT Electric potential
(**oxidation**-reduction, of iron phenanthroline derivative complexes)
IT 35235-36-0P 35235-37-1P 35235-38-2P 35235-39-3P
35235-40-6P 35235-41-7P 35235-42-8P 35235-43-9P
35235-44-0P 35235-45-1P 35235-46-2P 35235-47-3P
**35235-48-4P** 35235-49-5P 35235-50-8P 35235-51-9P
35260-67-4P 35260-68-5P 35260-69-6P 35260-70-9P
35260-71-0P 35260-72-1P 35260-73-2P 35260-74-3P
35260-75-4P 35260-76-5P **35260-77-6P** 35318-57-1P
35318-58-2P 35318-59-3P 35318-60-6P 35318-61-7P
(preparation of)